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ORIGINAL ARTICLES.

ARTICLE I.

THE GASTRIC MOTOR NEUROSES.[1]

By Charles G. Stockton, M.D., Professor of the Principles and Practice of Medicine and Clinical Medicine in the Medical Department of the University of Buffalo; Physician to the Buffalo General Hospital. Being part of a discussion on the "Newer Methods of Diagnosis and Treatment of Stomach and Intestinal Diseases."

The important matter of the gastric motor neuroses evades our perfect comprehension, and therefore satisfactory classification, because of the difficulty of understanding the innervation of the stomach.

It is determined that in the muscular coats are placed ganglion cells, analogous to those found in the intestine and œsophagus, endowed with the power to set up peristaltic movements; it is known that branches of the vagus are concerned in gastric movements, and particularly do they influence the muscles above the pylorus and cardia; and finally the distribution of the splanchnics going to the stomach affects the motions of the organ, but filaments of these nerves are so inextricably mixed up with ganglion cells and vagi terminations that all studies of gastric movements have been more or less disappointing through the uncertainty of results.

Singularly enough, while the stomach responds readily to physiological stimuli, and while it occasionally answers promptly to the application of heat, cold, chemicals and electricity, there is a provoking lack of uniformity in the results following the use of all artificial stimuli. One would naturally regard electricity, which always induces definite motion in the intestinal muscle, as the most positive agent for inducing gastric peristalsis, and yet the immediate reactions to it are sometimes surprisingly feeble. I feel sure that I have observed gastric peristalsis resulting from internal faradization, and yet in some experiments which I, with Prof. Pohlman, made upon dogs, both with the faradic and the continuous currents, during fasting and during the height of digestion, it was found that peristalsis was but slightly affected. The pylorus was tightly closed—by strong currents convulsively closed—the ingesta was forced down into the fundus of the stomach, and then the organ remained otherwise as passive as when the current was broken.

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[1] Read before the Medical Society of the State of New York, February 8, 1893.

The amperage was increased until the bodies of the animals were in a tetanic state, and yet the stomach remained motionless with the exceptions mentioned; nor was there an appreciable change shown when the exposed pneumogastric received the currents, save only that the pylorus and cardia became more violently contracted.

Of course the muscles of the diaphragm and the abdominal wall are easily excited, and one must be cautious not to confound these with movements of the stomach.

The motor neuroses may be divided into:

1st. Excessive peristalsis;
2d. Deficient peristalsis;
3d. Spasmodic closure of the cardia or pylorus;
4th. Relaxation of the cardia or pylorus;
5th. Merycismus (rumination);
6th. Vomiting.

There may be combinations of these forms and any of them may be associated with neuroses of secretion or sensation.

One of the first difficulties in diagnosis is that of determining whether a given motor disturbance arises from a neurosis, or whether it is in consequence of some definite lesion of the stomach or of the nervous system centrad, goading the organ into contractions, or, on the other hand, weakening its innervation or its musculature.

Thus round ulcer may induce pyloric spasm, or gastrectasis may bring about gastric paresis. It is also important to ascertain whether the disturbance is a sequence of general nerve perturbation, or whether it follows reflex irritation. More often, I judge, the latter will be found true.

Brain irritation from eye-strain, particularly in the female, and disease of the male urethra I have seen produce gastric neurosis of several forms, and although these cases are rebellious to other lines of treatment, they yield, occasionally in a surprising manner, when the cause is removed.

Examples of motor neurosis limited to excessive peristalsis, or peristaltic unrest, unassociated with other disturbances of the stomach, motor or otherwise, are rare. I have seen a few such.

The sometimes violent movement of the organ and its contents may be seen and heard both by the patient and the physician. It usually gives rise to apprehension in the mind of the patient, and sometimes it is accompanied by exhaustion. It is usually made worse by food, especially when the digestion is poor. Carminatives rarely afford relief, while a bland diet and sedatives are more successful.

More often this form of disturbance is associated with relaxation of the cardia, the pylorus, or both these. If of the cardia, it may be known by the frequent and sometimes explosive eructations of gas, gastric juice or chyme, and is often improperly set down as an instance of pyrosis. It is not always easy to determine from the descriptions of the patient whether there is actual heart burn or whether the sensations are the result of normally acid gastric juice belched up with food and gas. Examination of the stomach contents will disclose the truth.

When there is abnormal relaxation of the pyloric ring with excessive gastric peristalis, a very interesting set of symptoms is developed. The food only slightly changed by stomach digestion is hurried down into the intestine where it may be well enough digested to insure fair nutrition, or it may so stimulate the intestine that its contents move rapidly into the colon, soon inducing a diarrhoea, usually of a lienteric character. I have the records of several such cases, in which the long continued diarrhoea had so told upon the general health that the condition was serious, in some instances alarming. Indeed one case that was partly under my care died from an exhausting diarrhoea. Although I had not seen the patient for a month before death, judging from her previous history, and from the description given me of the final illness, I believe that death resulted from this neurosis. There was no post-mortem.

In a case now under treatment, this form of diarrhea has continued at intervals for seven or eight years, always developed by circumstances most likely to excite neuroses, and relieved only by treatment directed toward the nervous system. The case is now associated with an acidity and almost complete disappearance of gastric digestion, and has at last become more an instance of pyloric insufficiency than of excessive peristalsis, which, however, formerly existed. Another case of this kind associated with moderate gastrectasia, with absence of free hydrochloric acid, with excess of lactic acid and with unusual arthropathies, I reported in a paper read before the Association of American Physicians at the last meeting. (Trans., Vol. VII., p.

306.) In a letter just received from this patient she states that she remains perfectly well. The treatment consisted in the administration of local sedatives preceding meals, large doses of hydrochloric acid after meals, and the application of the faradic current by means of the gastric electrode on alternate days.

Instances of the very early evacuation of the stomach downward, attended with disturbances of secretion and absorption, are not rare. This recognition is of importance, since failure in this negatives treatment to a great extent. Sometimes there is witnessed serious impairment to the general health through loss of nutrition. At other times the intestines are able to lend efficient aid. Ordinarily there arises toxemia and hepatic congestion. When the pylorus is thus relaxed the contents of the duodenum, including bile, sometimes finds its way into the stomach, thus seriously deranging gastric digestion. The diagnosis rests upon examination of the gastric contents, and relief follows electricity and gastric stimulants.

Spasmodic closure of the cardia and pylorus are usually, but not always, associated with excessive gastric peristalsis. In one case reported before the Central New York Medical Association, (*Phil. Med. News*, 8, 1'91) the strong writhing movements could be seen and felt through the abdominal wall. The stomach had become dilated, perhaps, from overdistension, and the patient, already much emaciated, was rapidly losing ground. He made prompt improvement under sedatives and electricity.

It has seemed to me that this continued closure of the pylorus is susceptible of diagnosis, and often of relief; and that if neglected, dilatation of the stomach and distressing fermentative dyspepsia supervene.

Merycismus or rumination of a pure type is a rare anomaly. I have never seen it unattended by hysteria. However, there are occasional instances of regurgitation without rumination, in which the continued loss of nutriment proceeds to such an extent that the victim becomes very greatly reduced. This condition doubtless depends upon a relaxed cardia together with a nervous state, in which the patient is unable to resist the inclination to belch up the stomach contents. This also is a frequent accompaniment of hysteria, and the tube at times reveals a sufficient amount of food in the stomach when the patient insists that the entire meal has been lost. Here feeding through the tube is generally of great value, as is also faradization. Such patients very rarely show much loss in weight, thus demonstrating the fact that only a portion of the food is regurgitated. Curiously enough certain substances may be returned while others are retained. This is a phenomenon which remains unexplained.

As for vomiting occurring as a neurosis, it may be said that it is generally reflex. The familiar vomiting of pregnancy is an example, but it is by no manner of means the only cause. Other forms of irritation of the genito-urinary tract and eye-strain are not infrequently behind it. Such patients are prone to suffer paroxysms of vomiting, after which they trudge on without discomfort until some unusual tax upon the nervous system again brings on the vomiting, which may be intractable and persistent for days or weeks together.

In severe cases I have been obliged to resort to morphine hypodermatically and rectal alimentation to support the patient.

In moderate cases I know of nothing more serviceable than absolute rest, and the administration of such foods as experience proves most suitable, beginning with minute portions.

Cocaine, carbolic acid, menthol, hydrocyanic acid and cerium oxalate are useful in a proportion of cases, but the physiological rest is indispensable.

In all motor disturbances of the stomach no one method of treatment has been so satisfactory to me as faradization by means of the gastric electrode. The effect may be to some extent psychical, but long experience in varied cases will persuade one that there are other and more tangible results.

ARTICLE II.

UTERINE PERISTALSIS: THE CHIEF AGENCY BY WHICH THE SPERMATOZOA ARE BROUGHT INTO CONTACT WITH THE GERM-CELL.

By H. McS. Gamble, M.D., Moorefield, West Va.

Ever since the notion of the existence of a mysterious vitalizing influence in the spermatic fluid, termed the aura seminis, was abandoned, and the real fertilizing agent discovered, the so-called spermatozoön, sperm animalcule, physiologists and embryologists have sought for an explanation of the way in which, or forces by which the spermatozoa were introduced within the uterine cavity, and found their way through the Fallopian tubes as far as the ovary. For many years their inherent mobility, together with their peculiar anatomical formation, gave rise to the idea of their endowment with an independent existence and with a power and latitude of movement quite sufficient to explain their progress from the vagina to the ovary.

There were several objections to accepting this view as entirely satisfactory, but not until within the last fifteen or twenty years was any more satisfactory explanation offered, and, although the latter was based upon the personal observation of physicians whom chance afforded the opportunity of witnessing the movements of the uterus, under the excitement of the sexual orgasm, yet but little notice seems to have been taken of the reports of these observers.

Playfair, in his "Treatise on the Science and Practice of Midwifery," 3d edition, says: "The semen is probably carried upwards chiefly by the inherent mobility of the spermatozoa. It is believed by some that this is assisted by other agencies; among them are mentioned the peristaltic action of the uterus and Fallopian tubes; a sort of capillary attraction effected when the walls of the uterus are in close contact, similar to the movement of fluids in minute tubes; and also the vibratile action of the cilia of the epithelium of the uterine mucous membrane." Again the same author snys: "It must therefore be admitted that they (the spermatozoa) ascend chiefly through their own powers of motion."

Carpenter, "Principles of Physiology, Human and Comparative," in speaking of the movements of the spermatozoa says: "When their power of continued spontaneous movement is taken into account, it seems obvious that a special provision has been made for bringing the spermatozoa and ova into direct contact." As no other influence is mentioned in this connection, it is evident that he regarded these "spontaneous movements" as the sole, or at least the principal agency by which that contact which constitutes the first essential step in the act of fecundation is brought about.

It would seem that a matter of such paramount importance in the economy of the animal kingdom, at least of the higher order of mammalia, as the perpetuation of the species, could not be allowed to depend upon so slow and uncertain a mode of progress as the inherent mobility of the spermatozoa, when we remember the distance they must travel in order to reach the ovum, the obstacles in their route, and the dangers to their vitality they so frequently encounter along this route in the human female especially. All analogy goes to show that contact of the sperm-cell with the germ-cell is absolutely essential to the act of fecundation, and in no instance is the wonderful adaptation of means to end more beautifully exhibited than in the provisions of nature for the accomplishment of this act. In the vegetable kingdom, class phanerogamia, we find almost without exception, in perfect flowers, that provision is made for bringing in contact the fertilizing elements of the male organ of the plant, the pollen cells with the ovule. In all phomogamous plants, in which the perfect flowers are born upon erect peduncles, the stamens, or male organs, are *longer* than the *pistils*, and on the other hand, when the flowers are pendent, the stamens are shorter than the pistils, thus providing in either event for the bringing together of the essential elements of reproduction. In the higher orders of cryptogamia, we also find two distinct sets of sexual organs, the antheridia containing sperm cells and the pistillidia from which are evolved the spore bearing capsules. It is by the union of these two essential organs that reproduction is accomplished in this order of plants and this union is assured by the laws of growth and development that nature has established, as pertaining to this particular class of plants.

Without going minutely into the study of the laws of reproduction in the animal and vegetable kingdoms, we are authorized in adopting the following conclusions.

1st. That reproduction and perpetuation of species, both in the animal and vegetable kingdoms, at least as far as concerns the higher orders of either kingdom, are dependent upon contact of the germ-cell with the sperm-cell.

2d. That this contact is provided for in every instance by special laws, and that in no event is so important and vital an act left to slow, uncertain or doubtful processes, by which the act of generation might be jeopardized.

If our conclusions are correct as far as regards the animal and vegetable kingdoms in a general sense, with how much more force must they apply to reproduction in the human family and how exceedingly unlikely is it that this would be left dependent upon the uncertain movements of the spermatozoa.

It is our purpose, in this paper, to endeavor to show that the *peristaltic action* of the *uterus* in the *sexual orgasm* is the *chief* agency in bringing the spermatozoa into *prompt* and *certain* contact with the ovule.

In looking up the literature relating to this subject, I have only been able to learn the fact that one case has been reported, up to the present time, in which a physician had been permitted to witness the movements of the uterus during the sexual orgasm, though a medical friend informs me that he has somewhere read the history of another case similar to that referred to above and which was reported in the *St. Louis Medical and Surgical Journal*, September, 1872.

It is because of the paucity of medical literature upon this subject and of the light thrown upon a physiological act that has been surrounded from time immemorial with mystery and which has been explained chiefly by hypothetical reasoning, that I consider the history of the case forming the subject of this paper worthy of mention.

The following are the facts, so far as I remember them :

In December, 1892, I was consulted by a gentleman who sought my advice concerning his daughter's health. She was about 18 years old. Menstruated about 14 years of age. Was regular as to time, amount of loss, freedom from pain, etc., until two years before the date above mentioned, about which time she was subjected to an extraordinary nerve strain at school. In the midst of this and while menstruating she was exposed to a cold and chilling rain, in consequence of which, there was a sudden and complete suppression of the menstrual flow, attended with all the symptoms of uterine and ovarian congestion. From that time dates the commencement of her impaired health and the indescribable sufferings at her menstrual periods, the latter having been attended with spasms increasing in violence as time advanced. It was for the relief of these latter that I was consulted and my advice sought, her father remarking to me that he believed it to be impossible for her to pass through *two more menstrual epochs and live.*

Examination by touch revealed the absence of the hymen, the existence of leucorrhea, abnormal anteflexion of the cervix uteri with stenosis of the cervical canal, hyperemia of the neck and infiltration giving rise to increase of size and weight of the latter, but the tissues remaining soft and flabby. There was some tenderness upon pressure over the region of the ovaries. Upon examination by the speculum, the usual signs of endometritis were found, besides those above mentioned, a consideration of which would be foreign to the object of this paper.

The existence of hysterical phenomena in this subject, may almost be taken for granted, and we can see no useful purpose to be subserved by occupying the time of our readers in giving a detailed description of them.

After careful consideration of the history of this case, we were justified, as we believed, in formulating the opinion that the intense dysmenorrhea was partly of mechanical origin, that it, was due to the flexion and stenosis of the cervix uteri, and was partly the result of a hyperesthesia of the uterine nerves, possibly produced by pressure upon the nerve ends of the uterus, by the exudative products of the intra-uterine inflammation.

Believing that the antiflexion, no matter for the moment how its own genesis is explained, to be the chief factor in the production of this patient's sufferings, I advised the operation of rapid dilatation of the cervix and reduction of the flexion as the first essential step in the treatment of the case. This, of course, was with the view of relieving the excruciating pains incident to the menstrual act and for which advice was sought, trusting also that the reflex nervous phenomena would thereby be ameliorated, or entirely dispelled.

Having obtained the full consent of the young lady, as well as that of her parents, the operation of rapid dilatation was performed and it was during the preliminary steps of this operation that I was fortuitously permitted to witness the movements of the uterus in a sexual orgasm, while the subject was under the influence of chloroform and which a few words will suffice to describe.

Observing a precaution that I have never neglected since the day I first heard its importance explained by one of my instructors, that noble representative of American surgery, Prof. Samuel D. Gross, I administered chloroform to my patient, in the presence of several of her female relatives and friends. After complete anesthetization and the patient had been placed in the dorsal position, one foot being supported by a lady on either side, a thorough examination was again made by touch, and a bivalve speculum introduced immediately afterward. Just as I was about to introduce the point of the smaller sized Ellinger dilator, as modified by Dr. Goodell, I observed certain indications that caused me to halt, and a moment or two afterwards the unmistakable actions of a woman under the excitement of the sexual act. Then it was that I witnessed a scene that I presume rarely falls to the lot of a physician to observe, and, to my mind, the mode, or rather the physical influences, concerned in the introduction of the spermatozoa within the uterus and Fallopian tubes, were plainly revealed. When the acme of the orgasm was reached the uterus was seen to contract with a regular peristaltic motion, beginning at the fundus apparently, and extending to the os, at the same time that the whole organ descended toward the outlet of the vagina, the os uteri dilated to the size of a quarter of a dollar, or larger, the lips everted and the mucous membrane turgid and covered with an abundance of the glandular secretions pertaining to it. This was repeated several times with a perfectly rhythmical regularity, each time that the uterus reached the lowest point of descent a reversed peristaltic movement being observed, beginning in the cervix and causing a strong suction action in the muscles about the os uteri.

By this is not meant that regular vermicular peristalsis that characterizes the intestinal walls, but rather an up and down movement of the entire uterus produced by the coördinate action of different sets of muscles simultaneously with the special action of the uterine muscles, by which, besides whatever rôle they may play in the general movement above mentioned, dilatation and contraction of the os uteri and cervical canal are alone accomplished under the conditions we have described and as far as could be determined by sight alone.

These movements were repeated four or five times in succession, the act of descending, of dilation of the os and eversion of the lips constituting what might be called the first period in the performance of the rhythmical movements of the uterus in the sexual orgasm; the second period being that taken up by the contraction, inversion, or suction action of the os uteri and ascent of the uterus itself.

It is, we believe, by these combined forces that the spermatic fluid is drawn into the uterus, carried forward to the fundus, into the Fallopian tubes and finally to the ovary by the peristaltic action of the walls of the latter.

That the Fallopian tubes participate in the actions of the generative organs under the influence of sexual excitement is shown by the spasmodic seizure and grasping of the ovaries in the fimbricated extremities of the tubes, at the moment the orgasm takes place, and that ciliary action cannot be the agency by which the spermatozoa are carried, or helped along, toward the ovule, the fecundation of which is their highest function, is opposed by the fact that the vibratile action of the cilia of the epithelium of the uterine mucous membrane is from within outwards and therefore unfavorable to the ascent of the spermatozoa.

We cannot enter into a discussion of the various interesting questions pertaining to the subject of fecundation, such as the point at which fertilization of the ovule by union with the sperm-cell takes place; whether the spermatozoön penetrates the zona pellucida of the ovule before the latter has escaped from the follicle of De Graaf on the surface of the ovary, or somewhere in the Fallopian tube, on its way to the uterus, but will close with the following quotation

"That which we have seen with our eyes, which we have looked upon, declare we unto you."

SELECTIONS.

REPORT ON THE PROGRESS OF GYNÆCOLOGY AND OBSTETRICS IN GERMANY.

By Dr. Gebhard, Assistant Physician at the Royal University Clinic for Women in Berlin.

In the realm of practical obstetrics during the past year the operation of symphysiotomy, which had so long fallen into desuetude, at least in Germany, was suddenly revived, and with results so successful that they seem to have secured for it a permanent place among the obstetrical operations.

Symphysiotomy, which was invented by the French surgeon Sigault in the year 1777, was attended with such disastrous results in the pre-antiseptic period that it never was generally accepted, and in Germany it has long been completely abandoned. It was only in Italy that this operation was performed continuously, if only occasionally.

During the last ten years Morisani has published four articles, giving the results of symphysiotomy, which were so admirable that Spinelli and Pinard performed the operation. Encouraged by the published results of these authors, two German surgeons, Leopold, of Dresden, and Freund, of Strasburg, undertook the new operation, almost simultaneously, in the course of the past year.

Operation.—The procedure is carried out according to Leopold in the following manner: The patient is placed on her back on a table, with the buttocks projecting. The instruments requisite for forceps delivery, or version, are placed in readiness. Two assistants hold the legs, each with one hand below the knees, and press the trochanters firmly together with their other disengaged hands. An incision is now made in the skin, beginning at the upper border of the symphysis and extending to within one centimeter (two-fifths of an inch) above the clytoris. The soft parts are severed down to the joint, likewise the insertions of the recti muscles, but only so far as to permit the passage of the finger under the symphysis.

The index finger of the left hand is now passed between the bladder and the symphysis, downward along the posterior wall of the latter; protected and guided by the finger, a probe-pointed hooked knife is passed under the symphysis, and the latter is slowly divided from behind forward.

The legs having previously been widely separated and the pressure on the trochanters being slightly relaxed, the ends of the bones should immediately separate from three even to seven centimeters (six-tenths inch to one and one-half inches). Then the forceps are applied to the high lying head, which is easily extracted.

Now the assistants press the trochanters firmly together again and the ends of the bones, with the soft parts, are drawn together with sutures of silver wire and strong silk, and the wound is closed. A pelvic girdle is worn for three weeks.

Leopold holds that it is unnecessary to divide the inferior ligamentum arcuatum, since the narrowing of the entrance of the pelvis is usually caused by too great a projection of the upper portion of the symphysis.

It has happened to other operators, however, that during the forced extraction of the head the ligamentum arcuatum was suddenly torn through ; it seems to us, therefore, that it would be better to divide the ligamentum arcuatum carefully and slowly, together with the symphysis, in order that the sudden separation of the bones, which follows the tearing of the ligament, may not give rise to rupture of the ilio-sacral articulation. Mullerheim describes the technique of the operation at the clinic of Freund at Strasburg. This differs only in a few points from that of Leopold.

Mullerheim advises that immediately after the division of the cartilage an Esmarch rubber tube be passed snugly around the pelvis at the line between the crests of the ilia and the trochanters, and that this be drawn tight, in order that by its elastic pressure it may prevent a sudden separation of the symphysis and rupture of the ilio-sacral articulations. Instrumental delivery was not required in the cases described by Mullerheim, since the head descended spontaneously into the lesser pelvis within a few minutes after the section of the symphysis.

Several symphysiotomies by various operators followed these successful attempts. Thus Desiderius v. Velitz, of Pressburg, reported a symphysiotomy, successful both as to mother and child, which he performed exactly according to the rules laid down by Leopold.

Zweifel, of Leipsic, likewise reported a symphysiotomy. He recommends that a metallic catheter be introduced into the urethra, and that the bladder be pressed back by it before the finger is passed down on the posterior surface of the symphysis.

A considerable enlargement of the pelvic entrance was not obtained until the whole symphysis, with the ligamentum arcuatum inferius, was severed. Nevertheless, the extraction of the head, for which Tarnier's forceps were employed, was very difficult.

The rubber tube, which Zweifel attempted to use around the pelvis according to Mullerheim's recommendation, soon had to be taken off again, since it did not fulfil its purpose, but kept slipping up and became a hindrance. The operation was very bloody, and it was difficult to control the hæmorrhage. Zweifel recommends that after the operation the patient be laid on slings (Schwebe), since lifting her about, when the urine or fæces are passed, causes great pain. Toerngren, of Helsingfors, has published in German two cases of symphysiotomy, of which one ended fatally, the patient dying on the second day of paralysis of the heart. This author also is of the opinion that it is not always sufficient to sever the symphysis in its upper portion, leaving the ligamentum arcuatum intact.

From all these publications it is evident that symphysiotomy is an operation which certainly makes it possible in cases of narrow pelvis to accomplish delivery *per vias naturales* and to spare the life of the child. The results obtained up to this time, which are almost surprisingly favorable, show that the operation is indicated in a comparatively large number of cases.

To be sure, it is not yet known whether among the women operated upon there will not occur cases of severe injury of the sacro-iliac joints, which may lead to complete loss of the ability to walk. If, however, the prognosis remains favorable after further experience, the question arises as to how far the new operation can compete with Cæsarean section.

Leopold is of the opinion that, in consideration of the good results obtained up to the present time, the need of the Cæsarean section will be very materially limited, so that this operation will be confined to the cases in which it has always been employed, namely, those of absolute pelvic contraction (six centimeters or less of conj. vera with the fœtus at full term). v. Velitz is of the same opinion.

Kaltenbach, of Halle, has, in a lecture, also emphasized the fact that the absolute indication for Cæsarean section will remain hereafter as heretofore, but that on the other hand the relative indications will almost entirely disappear, if further favorable experiences confirm the efficacy of symphysiotomy.

We believe we may add that symphysiotomy is an operation which will be received with the greatest gratification, both in the interest of the life of the child and on account of saving the mother from injury, especially in the cases which are so frequent, where, in a primipara, with a moderately flat pelvis and a conjugata diag. of ten to ten and a half centimeters, the os uteri is completely dilated and the head of the living child is still above the pelvic inlet. In regard to symphysiotomy, perhaps mention should be made of the experiments on the cadaver which Biermer, of Breslau, has performed. He severed the symphysis in the dead body and separated the opening to the extent of seven centimeters. When this was done he found that the conjugatæ divergentes were widened one to one and one-quarter cm., the transverse diameter of the pelvic inlet was increased three to three and one-half cm., and the oblique diameter likewise three to three and one-half cm.

He found, further, that in the non-puerperal pelvis rupture of the ilio-sachral articulations, by forced separation of the ends of the symphysis, occurs much sooner than in the pelvis of the puerperal woman.

In the field of bacteriology the gonococcus question has excited the most lively interest of the gynæcologists. Since Bumm, of Wuertzburg, demonstrated the specific virulence of the gonococci by experimental cultivation, and by the inoculation of human beings, attention has been directed more and more to careful bacteriological examination of the inflammatory products of the uterine appendages, such as perimetritis, parametritic abscesses, and the pus of pyosalpinx.

In the first place, it could be established that the assertion of Bumm that the gonococcus is unable to invade unabraded, flat epithelium is false; it was, therefore, no longer possible to reject the theory that gonococci alone can excite a suppurative peritonitis where there is no mixed infection with staphylo- and strepto- cocci. The work of Wertheim, of Prague, brought a complete, and, on the whole, quite satisfactory explanation of all questions involved. This work, although written in Austria, should be reckoned as a part of the progress of German science, especially since it has been published in Berlin in the *Archiv. d. Gynækologie.* In order to understand the immense change which this work has caused in the whole subject of the investigation of gonorrhœa, it is desirable to describe the condition of our knowledge before the appearance of the work.

It had been placed beyond doubt by clinical observation that inflammation of the uterine appendages could be excited by gonorrhœal infection. It was also assumed that the so-called ascending gonorrhœa makes its way through the uterus and the tubes to the peritonæum. Invasion of the sub-mucous tissues of the tubes by the gonococci has been declared by Bumm to be impossible. The cultivation of gonococci from tubal pus could not be accomplished by the methods of plate cultivations, since the only way known for cultivating the gonococci was, according to the method of Bumm, on coagulated human blood serum. In order to demonstrate the presence of gonococci, therefore, we were limited to a careful study of cover-glass preparations; although this was carried out with the greatest care by numerous investigators, the number of cases in which gonococci were found in tubal pus remained very limited, only thirty-two such cases being reported.

In seventy-two cases no micro-organisms were found, and in some others there were staphylo-cocci, strepto-cocci, pneumonia-cocci, and undetermined varieties of bacteria and staprophytes. The cases in which the examination gave no results might be explained, as it was thought, by the assumption that the gonococci had been destroyed in the long stagnant pus. In peritonitic abscesses, which had developed in consequence of gonorrhœa, it was never possible to demonstrate gonococci. It was supposed by Bumm, Saenger, Gerheim and others that peritoneal affections always result from a mixed infection of gonococci with pyogenic micro-organisms. Menge alone, in an essay based on the work in the clinics of A. Martin, Berlin, declared that the question was yet unsettled. This was the extent of our knowledge when Wertheim published his work on ascending gonorrhœa in women.

At the German Gynæcological Congress, at Bonn, in 1891, Wertheim had already published a method by means of which it is possible to cultivate gonococci on plates. The steps of the method are as follows: First, the pus or other matter containing gonococci is thoroughly mixed in test tubes with sterile, fluid, human blood-serum ; then to the blood-serum, which has been thus infected, a sufficient amount of meat-peptone-agar to fill the tube is added, this substance having first been dissolved by heat, and then again cooled down to 104° F. ; to one part of blood-serum there are two or three parts of meat-peptone-agar when these are mixed the fluid is poured out on plates. In twenty-four hours, in a thermostat, colonies of gonococci are then formed, from which pure cultures can be produced on agar mixed with blood-serum, and coagulated in test tubes, laid slanting. By means of these pure cultures Wertheim demonstrated some biological facts concerning the gonococcus. Before the appearance of Wertheim's work, I also examined the peculiarities of the gonococcus in regard to cultures, using Wertheim's method, and I published the results in the *Berlin klin. Wochenschrift*, 1892, No. 2. First, he was able to show that the gonococcus grows well on ordinary agar, that is, without the admixture of serum, although this only occurs in test tubes, never on plates.

Afterward he inoculated some of his pure cultures on the human urethra, and in a few days typical gonorrhœa appeared, in the secretions from which characteristic gonococci were present.

Wertheim concludes from inoculations of animals that suppurative peritonitis can be produced by gonococci. He introduced minute quantities of a culture in agar into the peritoneal cavities of white mice, and on examination after death he found a circumscribed suppurative inflammation of the peritonæum, in the products of which pure cultures of gonococci could be demonstrated.

He injected an emulsion containing gonococci under the skin of his own arm, and got at this place a violent phlegmonous affection.

By these experiments it was shown that gonococci alone are able to excite purulent inflammation both on serous membranes and in connective tissue. These facts agree with the conditions which he found in extirpated Fallopian tubes. Out of fifteen cases in which he examined the pus of pyosalpinx he found ten where pure cultures of gonococci were present, four where there were no micro-organisms at all, and one where the streptococcus pyogenes was present.

By collection of all the facts which have been published concerning examinations for bacteria in cases of purulent salpingitis, or pyosalpinx, Wertheim showed that not a single case existed which can be used to support the theory of mixed infection. He was able, moreover, to demonstrate by microscopical preparations that the gonococci may invade the peretonæum both by way of the abdominal end of the tube and also through the wall of the latter, and may thus excite a specific gonococcus-peritonitis.

Finally, he was able to prove that gonococci can work their way from the tubes through the walls of the latter, and through the connective tissue of the broad ligament as far as the ovary, infecting the tissues of this organ and exciting ovarian abscesses, the pus of which contains gonococci.

These are the essential results of the work of Wertheim, which has seemed to me to merit description at some length, since it has led to a complete revolution in our views concerning gonorrhœa in women.

In conclusion it seems proper to refer to a monograph which Döderlein, of Leipsic, published last year concerning "The Vaginal Secretion and its Significance in Regard to Puerperal Fever," since the work is of practical pathological importance.

The author examined the secretions of 195 pregnant women, and could distinguish two sorts of secretion, one normal and one pathological.

The *normal secretion* was found in 55 3–10 per cent. of all the cases. It is a whitish,friable substance,of the consistency of coagulated milk, without admixture of mucus. It is derived, as Döderlein thinks, from the superficial layer of the vaginal mucous membrane, the cells of which when cast off and mixed with lymphatic fluid form a white mass, like porridge. The reaction of the normal vaginal secretion is intensely acid, and this is the chief characteristic of normal secretion. The acid is lactic acid, and it is derived from the tissue changes produced by a definite species of bacillus which is always present in normal secretion, and is called by Döderlein " vaginal bacillus." He has obtained it in pure cultures by the following method : A small particle of the unmixed secretion is carried by the platinum wire into meat-juice peptone-broth, with 1 per cent. of sugar, and the vessels containing the broth are placed for twenty-four hours in a thermostat. From these inoculations of agar are made, which, like the broth, contain 1 per cent. of sugar, and besides have 3 per cent. of glycerine.

If no contamination had taken place pure cultures of vaginal bacilli, capable of developing lactic acid, soon grew in the thermostat in the glasses which had been thus treated.

Besides this species of bacillus the author found in the normal secretion, in a large number of cases, a scizomyce (yeast germ hefe-pilz), which he recognized as the germ of thrush (soor-pilz), which, as is known, grows in acid nutrient media. He found other micro-organisms, both saprophytic and pathogenic, in normal secretions, but only quite rarely, and he is of the opinion that the vaginal bacilli, inasmuch as they produce acid, render the vagina unfitted for the growth of other germs, and thereby protect it from infection. The author was able to support this opinion by an experiment. He introduced the staphylococcus pyogenes aureus into the vagina of a virgin in which the vaginal bacilli were present, and he observed that as early as the fourth day the staphylo-cocci had perished in the acid secretion.

The *pathological secretion* differs from the normal by being very fluid and yellowish-white; it contains numerous pus corpuscles. Its reaction is faintly acid neutral, sometimes even alkaline ; at any rate, in comparison with the normal secretion, its acidity is diminished. In the pathological secretion, moreover, the vaginal bacilli are supplanted by various other saprophytic and pathological micro-organisms. (Döderlein found streptococci eight times in the vaginal secretions.) The author assumes that the pathological secretion is caused by an increased afflux of alkaline tissue fluids, such as is occasioned by excess *in venere* by pessaries and by gonorrhæal cervical catarrh. The practical conclusions which he deduces from his results are as follows :

Since the normal secretion contains no pathological micro-organisms, and by its constant acid reaction is a prophylactic against infection after labor, it in itself presents no danger of auto-infection. The pathological secretion, on the contrary, since it may contain streptococci, as was proved to be the case in eight instances, may be a source of infection for puerperal fever.

The possibility that it may lead to an infection of the uterine cavity is at any rate increased by frequent digital examination. The author, therefore, advises that vaginal exploration be limited as far as possible, especially in cases of faintly acid, neutral, or even alkaline reaction of the vaginal secretions.

He believes especially that there is no considerable danger of infection from the vaginal secretion in physiological labors, in private houses, where everything is orderly and clean, if every outside infection can be excluded by omitting vaginal examination, or by limiting it as far as possible. In lying-in hospitals, to be sure, things are very different.

Here examinations are required for purposes of education. But just on this account the author recommends a strict separation of the pregnant women with normal secretions from those with pathological ones. The distinction in this respect can easily be made by means of litmus paper. Parturient women with normal secretions can be subjected to the examinations of the students without danger, while on the contrary those with pathological secretions either must be spared such examinations, or the danger must be removed by a suitable local treatment of the vagina. A useful means for this purpose is thorough irrigation of the vagina with solution of lysol, which should be employed if possible, for several days before labor, and should be frequently repeated. In persons who are brought into the institution already in labor it is no longer possible to determine the condition of the vaginal secretion, since the reaction to litmus paper is altered by the cervical mucus which escapes during labor. The possibility that pathogenic germs are present in these cases requires vaginal disinfection in all such cases in the opinion of the author. Acting on the assumption that the lactic acid present in normal secretion prevents the growth of foreign germs, Döderlein attempted to change the pathological secretions of pregnant women into normal ones by systematic treatment with solutions of lactic acid. For this purpose the vagina of such pregnant women as had pathological secretions were irrigated three times daily, each time with a pint of a 1 per cent. solution of lactic acid. The change from a pathological to a normal secretion generally occurred under this treatment between the third and fourteenth day; in a few cases the treatment was not successful, for as soon as the irrigations were discontinued the secretions again assumed a pathological character.

CLINICAL NEUROLOGY.

A case of retroactive (retro-anterograde) Amnesia is reported by Dr. R.Baroncini, in the *Rivista Sperimentale di Freniatria e Medicina Legale*, 1892, fasc. III., IV. It is of special interest to our readers with reference to Dr. J. T. Eskridge's article in the July number of the *Alienist and Neurologist*, which is mentioned by Dr. Baroncini, and may be given here in outline:

The patient, Guglielmo P., 22 years old, had been serving in the army as a foot-soldier since December, 1891. He never had been the object of any serious complaint and was well liked by his comrades and officers. On the 15th of February, 1892, he left the hospital after two weeks' treatment for a urethritis. He was perfectly quiet on that day. At bed-time he told his comrades that he did not feel well and sat down on his bedstead, supporting his heads with his hands. In this position he remained silent and immobile for a long time, as if in deep thought. When at last his comrades tried to rouse him by shaking him and by raising his head he suddenly jumped up in a grave attack of mania, with agitation and impulsive movements, shouting at the top of his voice, "Murderers! murderers! Out of my house, you cowards! Who are you? Murderers! murderers!" What do you want? When his comrades tried to quiet him, he began to beat and kick and bite, always repeating his insane cries. He then was transported to the Civil Hospital and strapped down. For two days he continued to rave, a victim to continuous delirium with sensory phenomena, hallucinations, chaotic vociferation and violent movements. He did not sleep, would spit into everybody's face, did not take any food and continued to scream. After three days this attack ceased suddenly, and the patient was found quite calm, but very much confused. He did not recognize his comrades nor his army surgeon. To questions he either did not answer at all or in a short and abrupt way, as if he did not want to be bothered. From this time on he was quiet, eating and sleeping well and attending to all his wants. His main occupation was to walk up and down on the hospital grounds, and to talk about going home to see his wife and children. In this manner he passed a fortnight, always unable to recognize even his intimate friends. About the beginning of March a relapse appeared imminent and he was sent to the Asylum March 6th. He then became perfectly quiet again, continued to talk about his impending departure for home and behaved as if he had been used to the place for a long time. In his walks he often would stand still as if listening to some voice and then talk to himself under gesticulations. His answers to questions were, as a rule, incoherent, but sometimes he would answer correctly and in this way the address of his wife was elicited from him. At this period he appeared like a dreaming man, his language and actions having the characteristics of automatism.

On the 10th of March he suddenly appeared to awake as if from a long sleep, looked at the things and persons surrounding him and asked the nurse who all those people were, where he was and how he had come there? When he appreciated that he was in an asylum he broke into tears. He then asked for the circumstances of his transmission to that place and listened to the narrative with increasing astonishment. He did not remember to have been in the Civil Hospital, he did not know the name of the city and not the slightest recollection of having been a soldier or of any of the incidents of his military life. By repeated examinations it was found that he had lost all remembrance of the events *of several months* preceding the date of his attack. He did not remember when he left his home and his family, although he remembered quite well that the thought of the necessity of soon leaving his family for some time had occupied his mind and saddened him. Then there is a sudden gap in his memory. The exact day beyond which he remembered nothing could not be made out, there being no single event of special importance connected with it. All facts pointed to the beginning of November, which makes a *retroactive amnesia of three months and a half.* There is a complete blank in his memory from the beginning of November to the day of his awaking, March 10th, although this period includes events of unusual importance that must have made a deep impression upon his mind, such as the parting with his wife and child, a long journey, the beginning of his life as a soldier, etc. When a photograph of his person was shown him that had been made a few days before the onset of his attack, he smiled at seeing himself dressed as a soldier, but did not understand how that picture could possibly have been taken. He had not the slightest remembrance of the prominent buildings and localities of the city. His old comrades were perfect strangers to him, and the quarters where he passed the days of his military life were new surroundings to him.

The patient remained under observation for a month and a half after his recovery. He was perfectly calm and well-behaved, sociable and intelligent. He left the Asylum without any improvement of the condition of his memory, and there was none up to the date of the writing of Dr. Baroncini's report, and probably never will be any, since such amnesia seems to be of a *destructive character*, dependent upon an irreparable alteration of the nervous elements constituting the organ of memory.

The sudden onset of the mental alienation in this case, the grave attack of mania of a psycho-sensorial form, its sudden cessation, the following phase having all the characteristics of a cerebral automatism, the complete amnesia of the attack itself, and the retrograde amnesia made Dr. Baroncini believe that the case was one of an *epileptoid character.*

This view was supported by the examination of the patient's body, which revealed several physical signs of high diagnostic importance.

The patient measures 1.73 meters and has a symmetrical skull of 540 mm. circumference, an antero-posterior diameter of 190 mm. and a transverse diameter of 147 mm. He is well built, of delicate appearance, with feminine features; the skin thin, the face almost beardless, the lower jaw pointed, the mouth very small. Although 22 years old he does not appear older than 18. These characteristics, which would attract attention by themselves, appear of so much more importance as they are found in the majority of epileptics, impressing upon them the stigma of degeneration. The patient's grandfather had been a restless man of strange habits; his father had been of a neurotic predisposition and subject to epileptic fits. A female cousin, by his mother's side, has been in an asylum for some time, and her sons are all more or less affected mentally, one of them an imbecile. His two elder brothers are almost beardless, like himself; one of them has been a somnambule since early childhood. Another brother of his has been an epileptic.

He was killed in a quarrel at the age of twenty-five. Up to the age of twelve years the patient has been suffering from enuresis nocturna. Besides, he has had attacks of malarial fever. He has always been of a very irritable and nervous character, subject to sudden attacks of rage, although able to hide these characteristics pretty well under the appearance of feminine meekness. For the last three or four years he has had occasional attacks of vertigo. In July, 1891, he had a grave epileptic attack, apparently the first one. A few days before leaving for the army he had a febrile attack, lasting one day and followed by a spell of delirium, a fact which he does not remember himself. The idea of having to leave his family preoccupied his mind for a long time, but he stood the departure well, and seemed to get easily used to the new surroundings, making friends amongst his comrades and superiors. Soon, however, he again fell a victim to fits of passion and excitement, showing what Tonnini calls *functional asymmetry*, a prominent characteristic of all forms of epilepsy.

From this previous history of the patient and from the character of the attack itself, Dr. Baroncini draws the conclusion that he had to deal with a case of *psychical*—or improperly so-called—*larvated epilepsy*. It closely resembles what Falret describes as *grand mal intellectuel*. A grave maniacal paroxysm, exploding with extreme violence, delirium with hallucinations and the idea of persecution, short duration of the attack and sudden cessation. This period corresponds to the clonic spasms of the classic form of epilepsy and was followed by a period of epileptic automatism, extending over the unusually long interval of twenty-two days.

The most interesting feature of Dr. Baroncini's case is the appearance of retroactive amnesia after recovery from the attack, and especially the very long period which it comprises.

Cases of retroactive amnesia may be found in the writings of the early part of this century. Falret (in his article on "Amnesia" in *Dechambre's Dictionnaire des Sciences Médicales*, 1866,) mentions cases reported by Pritchard (1824), Brodie (1825), Toulmouche (1843), Ecker (1848), Bruns, Henke, etc. Since then these observations have increased in number, and it would be worth while to collect all the facts and to analyze them. The oldest case in literature seems to be the one mentioned by Charles Villiers in his letter to G. Cuvier (1802): A young woman who loved her husband affectionately had a protracted attack of syncope during her first labor; when she recovered, she knew nothing about her becoming confined, she did not remember to ever have been pregnant, and could scarcely be made to believe that she was married. She had completely lost the memory of everything that had passed during her married life, and never recovered the reminiscence of the period effaced from her mind. A similar case is reported by Capuron, in his work on obstetrics, and Dr. Bidon has reported to the Paris Academy of Medicine the case of a lady who lost the memory of a whole year during eclamptic convulsions complicating her first labor. At the same meeting of the Academy, Proust related a case where a lady lost all memory of her married life during her second labor, without any intervening eclamptic attacks.

Another cause that has produced the same effect is violent emotion in individuals who are predisposed to nervous troubles by heredity or otherwise. Charcot reports a case where a woman of 34 years, while doing her housework, was abruptly told by a stranger that her husband was dead. The news was false; but the woman fell into hysterical crisis of three days' duration, and when she recovered she had completely lost all reminiscence of what had passed during the last six weeks.

In a case reported by Dr. Arnozan before the Medical Society of Bordeaux, a man of 65, on receiving some sad news, that he had expected for some time, was so gravely affected that he instantaneously lost remembrance of everything that had happened during the last three days.

Another group of cases comprises instances of retrograde amnesia occurring after *organic brain lesions*. Falret mentions a case of Battie's where a priest lost all remembrance of the events of the last four years after an apoplectiform attack; and in the case of Brown-Séquard's the amnesia produced by a similar cause comprised five years. Poggi had a case where a bright child of eight years knew nothing about his whole previous life after an attack of scarlet fever with severe brain symptoms. He did not know his father, his mother, his brothers, and had returned, intellectually, to the days of infancy.

The simplest and most characteristic cases of retroactive amnesia have been observed after *traumatic brain lesions.* Azam has shown that in almost all cases of traumatic brain lesion the victim has lost memory of the circumstances immediately following upon the accident, and of a longer or shorter period preceding it. It was Azam who named this phenomenon anterior or retrograde amnesia (of traumatic origin). Joseph Bell has described a number of such cases, and Rouillard mentions the most interesting case of a midwife, 54 years of age, who fell downstairs when starting from home to take a case, recovered after a short time, walked to the place where she was expected, did all the necessary manipulations with minute accuracy, and then, at the onset of copious hemorrhage, several hours after delivery, expressed her deep astonishment at being present, not remembering anything about her walk from home, etc., or the delivery, or anything else that had happened since the accident.

The relative frequency of the phenomenon in *epilepsy* is mentioned by all authors; so by Savage, and by Féré, who compares it to the amnesia produced by traumatism, by Bianchi, Bonacci, etc.

It is of high importance from the medico-legal standpoint that two entirely different causes, epilepsy and trauma, may produce exactly the same effect, and give rise to the remarkable phenomenon of retroactive amnesia.

It must be mentioned that the true traumatic nature of some of the cases of retroactive amnesia has been doubted by prominent neurologists, there being in most of them *no direct blow* or similar injury, *but a fall*, which might be secondary to an epileptic attack, manifesting itself in the form of vertigo only. Such was the opinion of Charpentier and Féré in Brouillard's case (see above). Baroncini, however, thinks that there are clear cases of retroactive amnesia due to traumatism, but at the same time his opinion is that in all three forms of retroactive amnesia—those due to violent emotions, those following traumatism, and those produced by convulsive attacks—the true cause is to be sought in the "shock," the commotion of the brain, that leaves it exhausted by the violent nervous discharge.—*Alienist and Neurologist.*

SEPTICEMIA AND ITS TREATMENT WITH OXYGEN.[1]

By ANDREW F. CURRIER, M.D., New York.

There is scarcely a physician, whatever his line of practice may be, who is not brought into more or less intimate contact with septicemia. Perhaps there is no disease from which physicians suffer so frequently in their own persons. Its treatment is consequently a matter of unusual importance, whether it be regarded from the prophylactic standpoint or include the consideration of measures for attacking it when actually present. The disease has many varieties, or perhaps it is better to say grades, of intensity, and I shall only attempt to consider, at least in the main, those of its forms and phenomena with which the gynecologist and the obstetrician are apt to be confronted. It is only since the development of bacteriological science that our knowledge of the etiology of this disease has been definite. Upon bacteriological investigation we must also depend, to a greater or less degree, for the settlement of questions concerning its prognosis and treatment. Notwithstanding these facts, the part which the clinician has to play in this disease always will be an important one, perhaps the most important.

Fundamental to the consideration of this subject are the following facts: The blood is the vehicle by which noxious as well as nutritious elements are carried to all parts of the body. The blood, in the infectious diseases, contains injurious elements which are clearly demonstrable, and their injurious effects are also susceptible of demonstration. The virulent effect of these elements varies under different conditions, according as their number and vitality are small or large, and with reference to the individual, according as his resisting power is great or small; it being understood that different individuals differ in their resisting power, and that the same individual offers greater resisting power at one time than another. These preliminary considerations are of importance, for they explain the varying intensities of septicemia and the varying effects of therapeutic agents and measures at different periods even upon the same individual. In Neelson's classification[2] septicemia is defined as a toxic acute mycosis of the blood. Or, in plainer English, it is a condition of the blood in which poisonous effects are produced more or less rapidly and intensely by germs which it contains, the germs having entered the body from without as elements foreign to it or as normal parasites of the body, and, comparatively harmless under ordinary conditions, have undergone changes which have made them a source of injury.

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[1] Read at the annual meeting of the American Gynecological Society, Philadelphia, May 16, 1893.

[2] See Parke, "Mütter Lectures," 1892, p. 27.

These statements presuppose the fact that the normal blood of healthy animals does not tolerate pathogenic organisms; that when they are present it tries to get rid of them. The process of phagocytosis is the chief means of disposing of them and effecting a cure,[1] but when this process is defective for any cause, or when the vital forces of the body are feeble in their resistance or the pathogenic organisms especially active, the symptoms of septicemia are apparent. The present pathology of septicemia seems to rest upon foundations which are firm. The experimental portion of the evidence upon which it rests appeals strongly to the convictions even of those who are without practical experience in bacteriology, and may fairly be adduced as argument by such. Some of that evidence is as follows: In rabbits fatal septicemia may be produced in eight days by injections of the microbacterium agile of Davaine.[2] In house mice septicemia may be induced by injections of Koch's bacillus of septicemia or the putrefying fluids which contain it. The symptoms produced are considered characteristic of the disease, and the bacilli themselves may be found in the leucocytes and subcutaneous tissue about the seat of inoculation and in the blood vessels. Rabbits and guinea pigs may also be infected by similar means, but not to the same extent.[3] Injection of a few drops of a culture fluid of bacillus pyogenes fetidus will induce septicemia in mice and guinea pigs.[4]

Yet more convincing are the experiments of Garré, Bumm, Bockhardt, and Schimmelbusch, because performed upon themselves. Garré produced phlegmons on his arm from injections of a pure culture of staphylococcus pyogenes aureus of the third generation, the phenomena of the disease continuing several weeks. Schimmelbusch found that the bacteria, when rubbed into the unbroken skin, penetrated the hair follicles, proliferated and then infected the tissues. In Bumm's experiments abscesses were produced, and the abscesses contained large numbers of Staphylococcus pyogenes aureus, with cultures of which the experiments had been performed.[5] Evidence of another character is furnished by Escherich, who examined milk obtained from the breasts of thirteen women who were suffering with puerperal fever. In none of the cases was there excoriation of the nipple or glandular abscess. From ten of the specimens staphylococci were obtained from the secretions of both breasts, and from one from the secretion of one breast. In these cases it was believed, and on evidence which seems to be perfectly trustworthy, that the organisms entered the blood by way of the uterus and were excreted with the milk. Bacteria in the lochia of women suffering with puerperal fever were found by Mayerhofer. Coze and Feltz, investigating the same disease in 1869, found punctiform bodies, solitary or in chains, in the blood and secretions. Injections of solutions of these substances into the bodies of healthy animals resulted in evidences of infection. Further investigations in this disease were made by Chauveau in 1882, and puerperal fever was reproduced in animals with the first two generations of cultures of the isolated microbes. In 1883 Arloing showed that the virulent microbe in puerperal fever could be reproduced with its morphological and pathogenic characters in almost an indefinite series in a medium of beef tea. The same conclusions were reached by Fränkel, at about the same time, with cultivations upon gelatin.[1]

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[1] Arloing, "Les Virus," 1891, p. 203.

[2] Arloing, l. c., p. 130.

[3] Delafield and Prudden, "Handbook of Pathological Anatomy and Histology," 1889, p. 89.

[4] Parke, l. c., p. 81.

[5] Parke, l. c., p. 73.

The following interesting experience of Eiselsberg is quoted by Parke[2]: In four cases of fever following injury and operation a diagnosis of septicemia was made by means of a bacteriological examination of the blood. Acute rheumatism was known to be present in one of them, but the bacteriological examination showed that there was also osteomyelitis. In three of the cases the blood contained staphylococci, in the fourth streptococci. In eight other cases of septic disorder which were seen by Eiselsberg a correct diagnosis was reached by bacteriological examination.

The microbes which are to be found in cases of septicemia are the streptococci[3] and staphylococci, together with their soluble products.[4]

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[1] The foregoing quotations from Arloing, l. c., p. 35 et seq.

[2] Loc. cit , p. 43.

[3] The streptococcus has been found by Predöhl and Fränkel in cases of peritonitis (Parke, loc. cit., p. 140).

The streptococcus and staphylococcus have been found by Bumm in puerperal peritonitis. Bumm considers putrid peritonitis as usually the result of surgical procedures (Parke, loc. cit., p. 130).

Babes considers ordinary puerperal fever as a streptococcus invasion, but the pyemia following abortion as the work of the staphylococcus (Parke, loc.cit., p. 72).

It is hardly necessary to say that the terms puerperal fever, puerperal cellulitis, puerperal peritonitis, and puerperal septicemia all mean practically the same thing —that is, that poisonous effects have accompanied the puerperal condition as the result of infection.

[4] Rodet and Courmont have found that the same results were to be obtained from the soluble products of staphylococci and streptococci as from cultures of the microbes (Arloing, loc cit.,p. 203).

In the cases of so-called mixed infection other microbes are also to be found. Much attention has been paid during the past year to the bacterium coli commune, which is ordinarily a harmless inhabitant of the intestine, but becomes pathogenic in the presence of decomposing matter in the intestine, as in cases of prolonged constipation.

The forms of septicemia with which one necessarily becomes acquainted in the practice of gynecology and obstetrics may be the result of—

1. Decomposition of retained material in the intestines, with absorption of toxic products resulting therefrom.
2. Absorption of the products of retained and decomposed material following abortion or labor at term, through the uterine lymphatics or any divided portion of the uterine mucous membrane.
3. Intoxication associated with surgical procedures upon the abdominal and pelvic organs.

The first of these varieties is very much more common than is generally believed. Women who suffer with constipation which goes unrelieved for long periods of time, and who present the outward appearances of anemia and malaria, are very often simply victims of septicemia. Parke called attention to the influence of the bacterium coli commune in such cases in the "Mutter Lectures" for 1892, and laid stress upon the importance of thoroughly clearing out the intestines prior to operations in which the intestines might be directly or indirectly involved, thus anticipating harmful effects from the development of the bacterium.

The second form of septicemia, in which there is decomposed material within the uterus, together with the toxic germs (streptococcus, staphylococcus) which develop and produce infection in such a medium, may present mild symptoms and be readily susceptible to treatment, or it may so overwhelm the entire organism that no treatment will be of the least benefit. Such cases are often extremely insidious, running a comparatively mild course for days or weeks while undermining the vital forces beyond the possibility of repair.

The third form of septicemia with which this paper is concerned is usually attributed to some conscious or unconscious fault on the part of the surgeon; to dirty hands or dirty instruments; to the direct introduction of poisonous germs. This is but a half-truth, for we now know that a relatively clean operation (absolute cleanliness being comparatively unattainable) in tissues that are unusually sensitive may result seriously. The individual equation eludes all attempts at antisepsis or asepsis. An antiseptic may be an irritant, and often prevokes, in sensitive tissues, trouble which the laboratory experiment taught that it would prevent. A scrubbing brush may carry disease in its bristles, or it may be used so vigorously that the protecting epidermis will be removed and infection invited. The bruising and tearing of the tissues, their prolonged pressure or exposure, and the various faults in the use of the ligature are quite as influential in the production of septicemia as the introduction of a few germs which it is the business of the blood cells, and particularly of the peritoneum, with which most of the operations of the gynecologist are directly or indirectly concerned, to dispose of.

The symptoms which more than any others mark the presence of septicemia and demonstrate the pernicious effect of the toxic agent are referable to the nervous system. Such are the paralysis of the muscular coat of the intestine, uncontrollable vomiting, obtuseness of the intellect, or mental excitement with spasmodic movements of muscles or groups of muscles. Coincidental with these grave symptoms there may be the greatest activity in the eliminative organs—the skin, the kidneys, the intestines, the lungs—as if Nature were making frantic efforts to get rid of the accumulating load. With favorable conditions for the development of the toxic germs within the body, the struggle is an unequal one. Okintchitz[1] has found that the prognosis depends directly upon the number of the microbes, a great number of them rendering it unfavorable, even though there be no metastatic deposits. The object of treatment, therefore, in cases in which the blood contains or is likely to contain such toxic elements as have been under consideration, is twofold—namely, to sustain the natural forces, so that in the struggle which we are told the healthy elements of the blood are constantly waging against the toxic the former may be victorious, and, in addition, to use if possible such means as shall directly destroy or neutralize the effect of the toxic elements.

The natural forces are to be sustained by the greatest possible abundance of the most concentrated food substances, especially milk, and by an abundance of alcohol. A starvation diet is as inappropriate in the treatment of septicemia as in the treatment of typhoid fever and other wasting diseases. The rôle which is played by alcohol is probably identical with that which it exercises in the fevers.

The tolerance which delicately organized women show for large quantities of alcohol in all these conditions is remarkable, and seems to indicate that its toxic effects are expended in antidotal action upon some other poison. But I do not propose to argue at length upon the value of alcohol as a germicide at the present time, decided though

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[1] Parke, loc. cit., p. 78.

I believe its value is, and conscious though I am that there are few substances which can so readily be brought in contact with the elements of the circulation. The object of this article is more particularly to direct attention to the availabity and utility of oxygen as a means of treatment. The facility with which oxygen is absorbed by the blood, the function of the hemoglobin in carrying it and distributing it to the tissues, and the oxidation which is accomplished through its affinity for nitrogen, hydrogen, and carbon, are fundamental physiological facts which require only a passing notice. The capacity of the blood for absorbing oxygen is a more complex matter, for it involves consideration of the state of the blood at the time of treatment, the functional activity of the lungs, the tension of the gas, etc.

For these reasons the experiments which have been made upon animals (Thompson, Valenzuela), and those which have been made by indivduals *in health* upon themselves (A. H. Smith, Krafft), as to the influence of inhalations of oxygen, cannot furnish us with positive deductions as to what may be expected when disease is present. I do not hesitate to say, however, that they are of great value, and should be studied side by side with the clinical investigations, which up to the present time have not been numerous.

The negative evidence of the value of oxygen consists in the distress which one feels when the supply is insufficient, and the anemia which is so common in the Winter among those who are shut up more or less completely in over-heated and under-ventilated houses. We are too apt to lose sight of the fact that in the ordinary sick-room, say twelve to fifteen feet square, with a patient and one or more attendants, each of whom requires sixteen cubic centimeters of atmosphere per respiration, with a stove fire or hot air from a furnace, and with the combustion from lamps, gas, or candles, the windows being tightly closed, the conditions are not favorable for the patient who has to remain in the room all the time. The difference in results between a deficient and an abundant supply of oxygen is seen in the records of treatment of epidemics of typhus fever and other infectious diseases when the cases in one series are treated in hospital buildings and in another in tents. Another instructive fact is the comparative absence of septicemia among Indian puerperal women so long as they lead an out-of-door life ; and the same is more or less true of all women who lead an out-of-door life. This also is indirect evidence, but nevertheless quite convincing. On the other hand, if it is not oxygen which guards against septicemia in such women, it is not cleanliness, that being unknown as it is understood in well-appointed hospitals ; and, again, when these people become partly civilized and live in houses they suffer with infectious diseases like other people.

Dark blood, outside the body, which absorbs oxygen becomes decarbonated, bright—that is, arterial. The effect will be the same when it is diffused into the blood through the mucous membrane of the lungs or alimentary tract. This suggests the very important question of tension and pressure in the use of oxygen. Atmospheric air being a mixture (O+N), one volume of oxygen will contain the equivalent in oxygen of five volumes of air, and the pressure of one atmosphere of oxygen will give an equivalent in oxygen of five atmospheres of air. The effect of very high pressures (twenty or more atmospheres) is harmful, or even destructive, to the essential elements of the blood.[1] A pressure of even three atmospheres produces convulsions in rabbits (Thompson.) It is evident, therefore, that some care should be exercised to prevent the irritating effect of excessive absorption of oxygen. The saturation of the hemoglobin is a variable term in every case. It can be approximately determined for the blood in health, but in septicemia the corpuscles are small and many of them are disintegrated. The plasma, which in health contains but two per cent. of the total volume of the oxygen of the body, will absorb somewhat more than this under pressure, and its increased volume of carbon dioxide, urea, and uric acid in septicemia will still further favor oxygen absorption and oxidation. Consequently the volume and pressure of oxygen which are appropriate in each case of septicemia must be determined by experiment in each case. The dark color of the blood, the small size and disorganized condition of many of the red globules in septicemia, and the shallowness of the respiration indicate a deficiency in the oxygen supply. The effect of an increase in the supply of oxygen in the blood upon the microbes of septicemia has not yet been definitely determined. Dr. William H. Welch, of Baltimore, in a personal communication says: "I do not think that it will be easy to explain the beneficial effects of inhalations of oxygen, which you have observed in cases of septicemia, by any known influence of oxygen on the bacteria themselves. When bacteria are submitted to an atmosphere of oxygen under high pressure, some species are killed. Some kinds of bacteria die more quickly when exposed to oxygen than when the air is excluded, but this is generally a matter of days. The products of bacteria growth are often of a very different nature when there is free admission of oxygen than when this is excluded. Then one has to consider whether a beneficial therapeutic agent which has no apparent effect on the bacteria or their products may not enable the animal organism to contend more successfully against the bacteria. The question, you see, is a complex one, but I do not think that you would be warranted in believing that the good results of your treatment are attributable directly to a germicidal influence of the oxygen on the bacteria themselves."

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[1] Arloing, "Les Virus," 1891, p. 99.

The experiments of Grossmann and Mayerhauser,[1] Pasteur,[2] Chauveau,[3] and Arloing[4] simply confirm the statements of Welch that a positive germicidal effect of oxygen upon microbes circulating in the blood cannot as yet be demonstrated, at least under such conditions as would be compatible with the welfare of the rest of the organism.[5] The beneficial influence of oxygen inhalation in septicemia probably depends, therefore, upon some other than a germicidal action.

That which is noticeable when chemically pure oxygen is inhaled at such a pressure as is compatible with existing conditions of respiration is usually as follows: A stimulation to deeper respiration; warmth of the extremities, perhaps warmth of the entire body; increased tension of the pulse; a more natural color of the surface of the body, if it has been dark or very pale.[6]

If the discoloration of the surface were an evidence of sepsis improvement in this symptom is to be expected from the use of oxygen, provided it was used before intoxication had become too general.[1]

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[1] Bacteria in general do not live more than twenty hours in oxygen at a tension of five to seven atmospheres.

[2] Culture fluids of the bacterium of chicken cholera are attenuated by exposure to atmospheric air.

[3] Attenuation of culture fluids of carbuncle bacteria results from exposure to oxygen under high tension.

[4] A tension of five to eight atmospheres of oxygen will suspend microbic life in the interior of a culture, and then destroy it. Simple contact of oxygen at normal tension, if sufficiently prolonged, will weaken the virulence of cultures (Arloing, "Les Virus," p. 235).

[5] With reference to the influence of the higher equivalences of oxygen, Welch writes: "Ozone and nascent oxygen are more powerful than ordinary oxygen in checking the growth of bacteria" (Medical Record, May, 1889).

W. G. Thompson, (Medical Record, May, 1889) says it is impossible to take ozone into the blood through the lungs, and that even if it were possible its presence would be incompatible with the normal continuance of the circulation.

Oberdörffer (Centralbl. für Bakteriol. und Parasit., 1890, vii., p. 350) found that cultures of staphylococcus pyogenes aureus were destroyed after half an hour of exposure to a stream of ozone which had been passed through a Babes' ozone tube, and concluded that ozone was unfavorable to the development of disease-producing micro-organisms, also that the ozone in the blood, if in sufficient concentration, exercised a destructive influence upon micro-organisms which were introduced therein.

[6] Thompson says he has never seen a favorable change in the color of the surface when oxygen was inhaled by cyanotic individuals, nor in cases in general in which there was heart disease.

The stimulation of the blood current and of the respiratory function is, of course, directly favorable to the purification of the blood by elimination of its toxic elements. The stimulation of the nerve centers presiding over functional activity, which is possible if intoxication is not too pronounced, is apparently the effect of the oxygen, and this, if sufficient and continuous, will produce a favorable result whether there is direct germicidal action upon the bacteria in the blood or not.

One of the most noteworthy symptoms attending this method of treatment is the drowsiness and sleep which are induced. I have observed the same thing when the windows of a sick-room were thrown open and a large volume of fresh air was introduced. The increased freedom of respiration, the warmth which suddenly diffuses through the entire body, the condition of *bienaisé*, which patients at once assume, are certainly suggestions that a powerful change is being wrought in the body, and if the administration of oxygen is begun sufficiently early—that is, before the centers of functions are paralyzed by the poisonous agencies—it would seem that much benefit could be expected from the use of this remedy. The only ill effect which I have ever seen consists in pain referred to the region of the stomach, which was probably due to swallowing the oxygen, which may have been administered under too great pressure. (I have observed this symptom in two cases, one a case of septicemia attending prolonged retention of feces, and the other a case of mammitis following labor at term.)

With reference to the method of administering the oxygen, my experience leads me to believe that the simpler it is the more desirable will be the result. The principal precautions seem to me to be the determination that the oxygen is pure, that it be administered sufficiently early in the history of the disease, and that it be administered only in sufficient volume to be readily and comfortably tolerated.

The histories of two cases are added, in one of which it was used successfully; in the other it produced decided benefit at first, but this improvement was followed by overwhelming symptoms of intoxication, the case terminating fatally. The two cases are given as types of what may be expected in the way of benefit from the gas, and of its limitations.

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[1] A. H. Smith reports two cases of diphtheria cured by Beigel by this means, and a case of pyemia of his own, also cured. Valenzuela placed rabbits suffering with induced septicemia in a chamber containing pure oxygen, and cured them of the disease.

Case I.—Mrs. F., German, age 48. Hegar's operation, October 6, 1890, for large myoma uteri. Operation very difficult on account of adhesions. Peritoneum torn in many places. Profound shock. Drainage tube two days. Bowels moved third day. Evidences of heart failure third day. Tincture of digitalis and tincture of strophanthus in ten-drop doses every two hours; turpentine, muriate of iron, and carbonate of ammonia also used at sufficiently frequent intervals. Eighth day, urine contains albumin. Tenth day, abscess of abdominal wound discharging freely. Eleventh day, collapse; pulse 150, temperature 103 , respiration 40, cyanosis. Atropia, morphia, whiskey, ammonia administered. Oxygen by inhalation attended with great relief to respiration and refreshing sleep. Acute nephritis developed, and oxygen inhalations were continued during subsequent week. The oxygen was inhaled from five to ten minutes at a time, according to the urgency of the symptoms, and discontinued as the respirations became deeper and the skin natural in appearance. The patient ultimately made a complete recovery. It was believed that the oxygen repeatedly warded off impending death.

Case II.—Mrs. H., American, age 39. Operation for removal of dead and macerated fetus, January 11, 1892. Septic at time of operation. Uterine tissue very firm and dilated with great difficulty. Septic peritonitis quickly developed. Uterus irrigated frequently. Symptoms urgent, oxygen inhalation on the fourth day, with immediate relief to dyspnea. Drowsiness and sleep, apparently due to the oxygen. Catarrhal gastritis very troublesome; delirium. Renal functions very active; bowels thoroughly evacuated, fecal matter having been retained a long time. Sepsis became universal, without formation of pus. Oxygen used at intervals for a week, and then for two days almost continuously. After the intoxication became general there was no decided benefit from the oxygen, except in a certain amount of relief to dyspnea. It may have delayed the fatal issue, which occurred on the twelfth day. The effect during the first few days was markedly beneficial, but evidently insufficient to stem the tide of advancing sepsis.

LECTURE.

SUGGESTIONS FOR A NEW METHOD OF TAKING EXPERT TESTIMONY.*

By Landon Carter Gray, M. D., Professor of Nervous and Mental Disease in the New York Polyclinic.

No one will venture to deny that the present method of taking the testimony of medical experts is unsatisfactory, for judges, lawyers, and jurymen regard these gentlemen with distrust, and medical men, as a rule, are very reluctant to go on the witness stand. To us physicians the reason for all this is perfectly obvious. The machinery of the law is not adequate for the purpose of obtaining for judges and juries the opinion of competent medical men. One of the latter, for example, who is to give his opinion to a jury upon a great question of medical science goes upon the witness stand in a radically false position at the very start, since he is regarded by everybody as a partisan, this opinion often being held most strenuously by the lawyers who have retained him. His successful passage through the cross-examination to which he will be subjected is generally dependent much more, I am sorry to say, upon his quickness of wit and repartee than upon his knowledge of medicine, as he is seldom a match for the trained disputants of the law, facile with experience in entrapping the unwary or the confused into real or seeming inconsistencies and apparent verbal contradictions. Twenty-four listening ears in the jury box, sounding portals to ignorant and untrained brains, drink in eagerly all that he says, and the jurymen reach their conclusions as to whether he is trustworthy or not much more upon the data furnished by his personal address, his coolness, and his adroitness, than through any exposition that he may offer them of the facts of science. Then comes the expert upon the other side to contradict him or he will be regarded as disloyal to those who are to pay him his fee. It constantly happens that a competent physician thus has his conclusions rejected by an incompetent one. Who is to decide between them? The theory of the law is that the lawyer of the competent witness should make the competency of the latter apparent, and that he should make equally clear the ignorance or the false conclusions of the incompetent witness. But any man familiar with our trials knows that this is very rarely done, for the very simple reason that the lawyer himself seldom has a suffi_ cient knowledge of medicine to do this; so that between the theory and the practice there is so wide a divergence that in very few trials of this kind does it happen that an entirely incompetent man does not obtain as much credence with the jury as an entirely competent one. I have myself been present at many trials in which some acknowledged master of the art and science of medicine has been counterbalanced in the minds of the jury by some medical man who would not have been fit to act as his third or fourth assistant. Lawyers will say that this difference between the two men can be made plain to the jury. Theoretically this is so, but in practice how is it to be done? One way would be to ask the opinion of the competent man about the incompetent one, but if this is attempted a cry of professional jealousy is raised by the opposing lawyer, generally with deadly effect. Another way is to call in other medical men to testify as to the competency of the two men, but such testimony is difficult to obtain, because physicians are very reluctant to appear in such an invidious position, and, moreover, the testimony of six men against a man can almost always be offset by the testimony of six other men for him, provided the attorney of the latter is energetic enough. A third way is to show the incompetency of the incompetent man by a rigid cross-examination; but this will depend upon the cross-examining lawyer's knowledge of medicine, which, as I have already said, is generally an unknown factor, and frequently none at all. Then, too, the reporters in the court room, on the alert for what is piquant and sensational, blazon forth to the public garbled reports of what the competent man has said, which are in no wise offset by equally faulty sketches of what the incompetent man has said, inasmuch as the latter has no pariteular reputation to lose and is therefore not vulnerable in this regard. The result of this system of obtaining medical testimony is that the competent physician goes home feeling that he has not been properly protected or reported, so that he shuns the next trial, and comes to believe that such leveling processes are too dangerous to his reputation to be often repeated. The lawyer ought to be able to appreciate these feelings very well. He takes precious good care that no question of legal science is passed upon by a jury. Ah, no! He puts his questions of legal science in the first place before a judge trained and educated in legal lore, and generally with an experience of years in a judicial capacity. Then, if he is not satisfied with his judge's decision, he brings the matter before the General Term, we will say, three judges sitting in a row, generally of still higher standing at the bar than the first judge. Still again, if he feels discontented, he goes before the Court of Appeals, a bench of judges generally of yet higher training; and if the question be one of proper kind he may pass on to the Supreme Court of the United States. Yet we physicians are expected to be content with the haphazard conclusions passed upon our great questions of medical science by a body of twelve men taken from the body of the people, often illiterate, invariably ignorant even of the elements of science, and still more crassly ignorant of the great principles innate to the higher and intricate questions of our profession that are taught only to the ablest men after a decade or two of close application and wide experience. The history of our courts records many failures of justice in determining medical questions under our present system. I could keep you here many hours if I were to go into the details of all that have occurred in the last twenty years. Is there a man in this room to-night who believes that Guiteau was not insane? Yet he was hanged in the sight of the world as a sane man; and the mockery of justice was made apparent beyond cavil by the autopsy, which brought to view his distorted brain with its wasted convolutions and its diseased membranes, mute testimonials to the accuracy of conclusion of the few courageous scientists who had dared to stand up against the howling mob of medical politicians and tell the truth. Some of you may remember the contest in the northern part of this State, some ten or twelve years ago, over the will of the wife of an ex-President whose lunacy at the time of making the will was so conclusively established that not a medical witness could be found to take the stand and say that she was not insane; and yet the surrogate admitted the will to probate, and a beautiful city on the border of one of our western lakes is now cultivating art and aiding religion with money that rightfully belonged to the heirs of the testatrix. We all know that a year ago twelve jurymen and a judge undertook to decide the mental condition of a prominent banker in this city, the world-wide reputation of whose father had made him conspicuous, and that after two weeks of the most careful elucidation of the questions at issue the judge bid not deem the jury competent to decide, confessed his own inability to do so, and relegated the whole question to a medical superintendent in the northern part of the State, who although entirely able was not one whit more so than several physicians who testified at the trial, while his selection was a virtual confession of utter impotence in the legal machinery of the trial court.

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*Read before the New York Society of Medical Jurisprudence, April 10, 1893.

How these defects in the law are to be remedied has been to me occasion for much thought, as well as many conferences with legal friends in whose judgment I have confidence. At the outset the key-note of the situation seems to me to be contained in Julius Cæsar's remark, who, when he was asked why he divorced his wife Pompeia when he had stated his disbelief that she was any party to the plot of the profligate Clodius to obtain an entrance to her house when she was alone with her women during the festival of the Good Goddess, answered haughtily: " Cæsar's wife must be above suspicion!" So must the medical expert be. He goes into the court now as a partisan. He should be there as a judge. There are two methods, in my opinion, by which this object can be effected:

First, the selection of medical men by the presiding judge to sit on the bench with him in an advisory capacity in trials which do not need juries.

Second, a conference of all the medical men in cases tried by a jury.

In England, I am told, it is the custom for the judge in admiralty cases to select a certain number of retired naval-officers, called *assessors*, who sit with him upon the bench and advise him in regard to nautical matters. I see no reason why such a custom should not be introduced here in trials before a judge. The latter can always ascertain who the competent men are in the different branches of medicine, either by consulting two or three physicians of character and standing, who are generally well known in the lesser towns, or, in a large city like New York, by a letter addressed to the president of some such body as our Medical Society of the County of New York or our Academy of Medicine, which elects a new presiding officer every year or every few years, and which is therefore reasonably sure to be free from cliquism. In jury trials a conference of the medical experts has been the custom for some time in Leeds, England, and of it Sir James Fitzjames Stephen, Judge of the High Court of Justice, Queen's Bench Division, writes thus in his " History of the Criminal Law of England," published in 1883: " For many years this course has been invariably pursued by all the most eminent physicians and surgeons in Leeds, and the result is that in trials at Leeds (where actions for injuries and railway accidents and the like are very common) the medical witnesses are hardly ever cross-examined at all, and it is by no means uncommon for them to be called on one side only. Such a practice," he goes on to say, " of course implies a high standard of honor and professional knowledge on the part of the witnesses employed to give evidence; but this is a matter for medical men. If they steadily refuse to act as counsel, and insist on knowing what is to be said on both sides before they testify, they need not fear cross-examination." These pithy words sum up the whole matter. Such a conference of the medical witnesses was suggested, as many of you will remember, some four years ago before this society by our distinguished fellow-member, the Hon. Willard Bartlett, who informs me that a number of cases have been tried before him under this system with the most admirable results. The medical men who go into such a conference must agree upon the facts. No one of them, for instance, unless he is exceptionally pachydermatous and unscrupulous, would deny the existence of a wasted muscle which the others saw, or a paralyzed limb, a lack of feeling of the prick of a pin, a tremor, a broken vertebra, a fractured bone, a contracted or dilated pupil, or any of the other objective evidences of disease whose recognition constitutes the very primer of a physician's education. Even if one unscrupulous physician is shameless enough to deny that he has seen what the others have, his testimony will be worthless, because it would be contradicted by honest medical men testifying upon the same side of the case. The conferring physicians can therefor only differ in the conclusions which they may draw from what they have seen, and this would simplify the trial very greatly, because it is far easier to judge of the value of conclusions when the facts are admitted than it is to do so when the facts themselves are in doubt. Suppose, for example, that six physicians in conference admit that a man has been injured in a railway accident so that his spinal column is fractured and his lower limbs are completely paralyzed. Suppose that three of these physicians state their belief that the man will never recover, while the other three are equally positive that he will get perfectly well. All that the lawyers have to do is to bring into court medical books treating of such fractures and their consequences, collect the statistics, and conclusively prove that one or the other side must be mistaken. Some one may object that even the medical writers upon this subject will not be unanimous in their conclusions. Admit that this is so, even then it is perfectly feasible to compute an average and hence arrive at what the law calls a reasonable certainty.

The popular belief in the uncertainty of medical science is a popular error. Medicine to-day is, in many of its departments, one of the exact sciences. It is a remarkable tribute to his mental breadth that a man who has been so engrossed as Lord Salisbury has been in the varied and pressing demands of a leader of a great party in a vast empire should have recognized this fact as he has in a recent address at Oxford. I do not believe that six competent physicians in the city of New York would be at variance in any essential particulars in their recognition of the condition of a given patient. During the last winter it has been my fortune to have a consultation with eight neurologists about a certain patient in this city, and my diagnosis was agreed to by every one; nor was there any essential difference in the treatment advocated. For fourteen years a brother specialist of mine, now sitting in this room and known to you all, has upon many different occasions been engaged in the same expert trials in which I have been concerned, and during this long period of time there has never been a disagreement between us, as to either diagnosis or treatment, except in one case, where we agreed upon the facts but differed in our conclusions—this, too, although we have fully half the time been upon opposite sides. The truth of the matter is that medicine has, to a very large degree, emerged from its empirical period and passed into one of approximate certainty. The attitudinizing, pompous physician of the past—solemn, white-cravated, eking out his dignity with a gold cane, and looking unutterably wise—has given place to the scientist; just as the rollicking, swaggering sailor of the olden time, gay of mien and jolly of air, profuse with his oaths and equally prodigal of his money, has made way for the educated engineer, thoroughly trained in the mechanism of the intricate machinery of our modern ironclad and torpedo boat. That the popular error remains rooted is due to the lack of appreciation by the laity, and even by judges and lawyers, that medicine is now so vast a science that a man who may be an authority in one department of it may be an utter novice in another. There are now published each year in the civilized world over two thousand medical journals and hospital reports. Almost every large capital in the world has two or three weekly journals. Every large city has several that are issued each month, besides which there are a vast number published every quarter. There is now being published in Paris an *Annual of the Universal Medical Sciences*, an American enterprise, which for five years past has been published in Philadelphia, filling each year five octavo volumes, and containing only an abstract of the noteworthy publications during the year. Each department of medical and surgical science is edited by some distinguished man, to whom the editors send clippings of the articles pertinent to his branch. During the last year this *Annual* quoted from two thousand one hundred and sixty-six different medical publications. There are ten great departments of modern medicine: General medicine, embracing what is known as general practice, such as abdominal and thoracic diseases, the general fevers, and the so-called zymotic diseases; generel surgery; eye and ear diseases; larnygology, or diseases of the nasal and throat passages; neurology, or diseases of the mind and nervous system; dermatology, or diseases of the skin; genito urinary surgery, with which is generally included venereal diseases; diseases of women; orthopædic surgery, or diseases of the joints; sanitation and hygiene; and in the larger cities there are also specialists restricting themselves to the diseases of childhood. Although each one of these specialists must undergo a general training of years in the medical schools and hospitals in the anatomy and physiology of the human body, the varieties and properties of drugs, and the general way in which disease affects the body, and although in the less populated districts there is not sufficient population to warrant the growth of the physician beyond the stage of the general practitioner, yet in our own great cities these ten great specialties are almost as distinct from one another as the dentist is from the physician, or the lawyer from the physician, or the shoemaker from the tailor, or the carpenter from the plumber. In none of these specialties does any man to-day obtain a great reputation until he has been from ten to twenty years in actual practice, and the most capable of minds can seldom master the technique of any one of them under a decade. So thoroughly is this fact recognized by the profession at large that no specialist in one line would venture for a moment to pit his opinion against that of a specialist in another. Each specialty has its own society in the city of New York, often in lesser cities, and also a national society. There is in this country a congress of physicians and surgeons which meets every three years in Washington, composed of fourteen different special societies. Considering all these facts, it is evident that such a system as I have advocated to-night can never work adequately unless the medical advisers to a court are selected with careful regard to their fitness for dealing with the matter at issue. The selection by a judge of his family physician to pass upon a question of women's disease, orthopædic surgery, neurology, etc., would not be a proper selection; for however able the family physician might have shown himself in dealing with the sicknesses of a family, and however great his natural ability might be, he would probably himself be the first to ask for a consultation with a specialist in any dangerous case outside of his line of general practice.

It is intimated to me by some of my legal friends that the system of medical assessors and conferences which I have proposed will be open to the objection that it is opposed to the principles of our law. To this I make answer that, if this be the case, the principles of our law are radically faulty. We are confronted with a condition of things which has grown out of our modern civilization, and which was not contemplated by our earlier law-makers. Are we to so blindly venerate the memory of our bygone jurists as to credit them with omniscience, and stand hopelessly shackled in the face of miscarriages of justice? Lord Coke said that the common law was the perfection of reason. In his recent interesting article upon the Chicago anarchists Judge Gary modernizes this into: "The common law is common sense." Certainly it seems to me, although I am no lawyer, that a law that ceases to be the embodiment of common sense has outlived its usefulness and ought to be superseded. No principles should stand in the way of necessary remedial measures.

I therefore ask the sober consideration of this society of my two suggestions—namely, first, the selection of medical men by the presiding judge to sit on the bench with him in an advisory capacity in trials which do not need juries; second, a conference of all the medical men in cases tried by a jury.

If the society will coincide with me in the advisability of these two remedial measures, I will ask for the appointment by the presiding officer of a proper committee to deliberate upon the matter and secure necessary legal enactments.

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PROCEEDINGS OF SOCIETIES.

RICHMOND ACADEMY OF MEDICINE AND SURGERY.

Regular Meeting, May 9, 1893. DR. GEORGE BEN. JOHNSTON, Vice-President, in the Chair.

Subject: Benign Stricture of Rectum.—Dr. T. J. Moore, Leader.—He said that this subject had of late become very interesting to him, as it had been rather obscure and little discussed except by a few who made it a specialty. After giving a very concise anatomical description of the rectum, he began the discussion by dividing the subject into two heads.

Congenital Strictures.—Those of a very obscure origin.

Non-Congenital Strictures.—Those resulting from ulcers, traumatism, cancers, syphilis, etc. All of these encroaching upon the caliber of the gut, lessening its normal function of receiving and passing fæces.

These strictures arise primarily from traumatism, secondarily from deep ulceration and consequent cicatrization. Very fortunately they are located, as a rule, near the anus, say from one to three inches above, but may occur anywhere up to recto-colon junction and in any number. Exciting causes may be such as undigested food, or foreign bodies such as buttons, seeds, apple cores; also mechanical interference, surgical operations, bruises, blows, contusions, etc.

The separation from any of these by throwing out materials of inflammation into submucous tissue, causing hypertrophy of muscular coat, or cicatricial contraction or cancerous infiltration. Chancroidal and syphilitic ulcers often cause cicatrization and stricture, syphilis especially in tertiary stage. Tumors, pelvic cellulitis and suppurative peritonitis are very common causes. All benign strictures necessarily invade the mucous membrane, cellular tissue and muscular fibers.

Straining at stool will often cause a dilatation and true hypertrophy of the tissues. The adenoid material becoming congested and enlarged will cause a nodulous feeling of the mucous membrane, while the mucous membrane becomes everted so as to present the basement membrane or a dry squamous epithelium, which by the way is of diagnostic interest in differentiating carcinoma. He thought the symptoms very insidious, but the presence of the following being very suggestive of stricture, systemic disturbance, dyspepsia, much flatulence, anemia, constipation of very prolonged nature, he had known it in extreme cases—from 20 to 60 days—hectic fever and septicemia sometimes from absorption of septic material originating in the retained fæces, and phthisis had been known to follow it.

Rupture seldom occurs. This to the doctor and patient is a consoling fact. Differential diagnosis between cancer and benign stricture is very uncertain and calls for very acute research on part of the physician. The progress and development is generally the safest means of diagnosis in such cases. Treatment: He thought it the duty of the doctor to diatate all those that come within the compass of the rectum. This dilatation to be gradual and as far as the caliber of the sphincter and gut will permit. This to be done by rectal diatator or large bougies made for the purpose. The consequent inflammation and absorption by this gradual dilatation will usually insure good success. If not, colotomy is the last resort and is often done with good success.

Dr. John N. Upshur thought the diseases common to the rectum very little studied by the general practitioners, therefore the subject so ably presented by Dr. Moore impressed him as presenting a field for instruction and progressive research, and looked upon the diagnosis as being specially important. He referred to what he held a very common cause of these cases—*i. e.*—those cases of hemorrhoids treated by so-called "pile curists," who are in reality quacks ignorant of the ultimate results of malpractice upon this very important organ. Here the doctor gave a very intelligent description of the physiology of the rectum and closed by advising the members to remember that fermentative dyspepsia and flatulent colic were often good signs of rectal trouble. Dr. W. P. Mathews referred to spasmodic strictures, and thought those cases come under that head wherein a rapid cure was reported. To him the syphilitic type seemed most amenable to treatment and generally did well under iodid. potassium. Dr. George Ben. Johnston, acting president, said that Dr. Moore had so ably referred to causes, symptoms and pathology, that he would only speak of the treatment. He concurred with Dr. Mathews in syphilitic treatment and Dr. Moore in gradual dilatation, but thought in many cases colotomy was called for and ought to be done regardless of the horror of an artificial anus. For he held that when the operation is properly done the artificial anus is not a nuisance but the source of saving many lives. He then gave the technique of the operation, preferring the left lumbar region. He was careful in approximating parts to form anus, and generally used a small glass rod in forming a pouch necessary to the retention of fæces.

RICHMOND ACADEMY OF MEDICINE AND SURGERY.

Regular Meeting, May 23, 1893. DR. HUGH TAYLOR, President, in the Chair.

Subject: Eczema. Leader, Dr. W. P. Mathews.—He looked upon eczema as a non-contagious inflammatory disease of the skin, of constitutional origin ; acute, subacute and chronic in character ; manifesting any or all of the results of inflammation at once or in succession; accompanied by pricking burning and itching. In the later stages having a serous exudate which dries into scales and crusts ; with a tendency to infiltrate and thicken the skin, which often cracks, producing painful fissures.

He thought it no longer regarded as a vesicular eruption, but a true inflammation of the skin, of a poly-morphous nature : often changing from one form of primary lesion to another and developing these simultaneously in different locations on the same patient. There are five elements of importance to be remembered in order to get rid of the confusion of terms.

1st. Stage of eruption, embracing acute, subacute and chronic eczema.

2d. The lesion present as ecz-erythematosum, papulosum, vesiculosum, and pustulosum primarily ; eczema-merclidous, squamosum, Sclerosum and fissures secondarily.

3rd. The location of the eruption, whether local or general, and on what part of the body if local.

4th. Condition of the diseased area, moist, exuding or weeping scaly or fissured.

5th. Cause—internal or external.

6th. Miscellaneous, papular, etc.

He thought Pye Smith very clear on the Pathological Anatomy when he said: "If a section of eczematous skin be made, the cuticle will be found unaffected, the malphigian layer swollen, the papillæ prominent and œdematous with dilated blood vessels and multitudes of leucecytes clustered around them, the deeper layer of cutic and subcutaneous tissues are unaffected." The prime factor then is nerve and capillary disturbance or dilatation and congestion of superficial vessels, while the changes in the skin are due to the amount and grade of the inflammation and whether general or localized.

Symptoms—1st, itching, burning or pricking pain; 2d, redness from congestion; 3d, papules-vesicles, pustules, etc.; 4th, crusting and scaling; 5th, infiltration or thickening; 6th, fissures or crocks. The most prominent of these, however, is itching. Redness is an essential element of the eruption and generally accompanied by rise of temperature in parts affected.

The exudate from eczema being composed of a saline and albuminous portion of course tends to dry into crusts and scales, the scales sometimes being the only evidence of the disease.

Infiltration or thickening is seen more or less in every case, but belongs more properly as a symptom of chronic eczema, the skin becoming hard and leathery, as seen in hands and feet.

The doctor thought eczema due to both a constitutional and a local cause, the constitutional cause not yet definitely known, but ably supported by Piffard, who says: "Eczema depends upon a constitutional derangement or diathesis, hereditary or acquired, and of indefinite duration." Also that it is the retention of some material in the system that ought normally to be thrown off by the kidneys, *i.e.*, uric and oxalic acids, with probably other less known products of imperfect oxidization. Liver troubles as well as malaria have been held by some as causes of eczema.

Among local causes he mentioned vegetable and animal parasites —irritant particles of dust and dirt from certain occupations, undue exposure to heat and cold, mechanical agents, in short, any external irritant whether mechanical, chemical or thermal. He thought the diagnosis of eczema very difficult, especially when it simulated the zymotic diseases; but believed a proper recognition of the beginning and progress of any form would usually lead to a proper diagnosis. To differentiate it from syphilitic eruptions is more difficult, but the history of the case, constitutional symptoms, involvement of glands and mucous surfaces, and other symptoms peculiar to syphilis usually clear up the doubt.

The treatment the doctor discussed very fully and satisfactorily, following mostly in the line of cleanliness and general hygiene, relieving the itching, aborting if possible the existing diathesis, relieving all co-existing derangements such as malaria, dyspepsia, gout, etc. In acute and subacute forms let skin rest as much as possible, in chronic use massage. Regulate diet (especially of children), giving arsenic, calx sulphurata, benzoat, lithia and iron. As water is irritant in most cases, it is well to add a little salt or glycerine, this to be followed by some soft powder. Every form, however, must be treated according to its simplicity or gravity, some requiring soft lotions, *i.e.*, lotio caluminæ et cutæ, or lotio calaminue et glycennæ, or those containing tar, bismuth or zinc oxide, others requiring soothing, stimulating astringents, *i.e.*, Tannin 1 ʒ to 1 ℥, plumb. acetat quiniæ, zinc canthraides, &c. He mentioned most of the popular remedies and their application in the several forms, but thought every case had to be treated on its own merits, recognizing the fact that it called for skill and labor.

Dr. T. J. Moore referred to Dr. Mathews' paper in very complimentary terms, and wished only to add some observations on eczema in children. He had seen it often in these cases disappear promptly by a proper regulation of diet, hence he thought most cases in very young children caused by over-feeding—the so-called "pastry children." He usually treated them by correcting diet and giving syr. iodid. ferri. In adults, he generally looked for liver, heart, bowel or kidney troubles in patients with eczema.

Dr. J. F. Woodward thought Dr. Mathews had neglected one very important point in differential diagnosis from syphilitic eruptions, *i.e.*, that in syphilis the stages of eruption never supplanted each other, that is, the papular form never preceded the erythematous or followed the pustular; they never exchange places in their onset. He also referred to a nervous variety and gave two cases—one seen in a lady at menopause where medication did no good, but the suppression of menses was followed by a rapid disappearance of the eczema. The other case, one of a sudden furor of onset of eczema in a woman at childbirth, no special development prior, but at time a violent onset of erythemato papular variety, disappearing after lying-in month, without treatment. He considered both of these cases of nervous types consequent upon nervous excitement at the critical periods of menopause and childbirth.

Dr. Jas. N. Ellis said Wuna defines eczema as "a chronic parasitic catarrh of the skin," and while he was not prepared to admit that all eczemas are parasitic in origin, the success attending the local use of parasiticides in the treatment of some of its forms inclined him to believe that they may be due to a vegetable parasite. This seemed to him highly probable in what Dr. Mathews called "eczema capitis," a sebonharic eczema of the scalp, beginning as a desquamative erythema and developing into a moist, squamous cousted or psoriasis-like exanthem, that is readily amenable to antiseptics. The local application of a 1–5000 sol. of bichlor hydrarg. after cleansing the scalp with a warm sol. of sodium bicarb., had rarely failed to promptly cure cases coming under his observation. Dr. M. D. Hoge referred to the treatment of several cases of eczema of scalp by poultices to head for 24 to 48 hours, followed by dilute of ash-drip lye.

Dr. J. S. Welford spoke of the close connection with, or exciting cause of, several cases of eczema, as seen by himself in patients of a gouty diathesis, and thought that in many cases this was the prime factor in bringing about the eczema. DR. J. F. WOODWARD.

THE SOCIETY OF THE ALUMNI OF CHARITY HOSPITAL.

Stated Meeting, June 7, 1893. WALTER LESTER CARR, M.D., President in the Chair.

An Echinococcus Cyst of the Omentum.—Dr. E. P. Mallett presented such a specimen. The tumor had been diagnosticated by one gynecologist as a fibroid with a very long pedicle, and by another as a dermoid cyst of the ovary. The long duration of the trouble was characteristic, the patient having complained nine years ago of pain, at which time a tumor was found, and an operation attempted, but abandoned, so it was stated, on account of the firmness of the adhesions. At the recent operation for its removal, it was found that there were no adhesions. Just before the incision was made, palpation yielded a very distinct fremitus, which was suggestive, but no actual diagnosis was made.

Dr. Waldo said that there was apt to be fremitus about any such growth, due to localized peritonitis, so that this would not be sufficient ground on which to base a diagnosis of echinococcus cyst. He could not see how it would be possible to make the diagnosis prior to the removal of the tumor.

Dr. Ralph Waldo presented a fibro cyst of the uterus. He had removed it about five weeks before by abdominal hysterectomy from a patient in whom there was quite extensive inflammatory enlargement of the ovaries and a double pyosalpinx. Numerous firm adhesions increased very much the difficulties of the operation. Except at the beginning, when clamps were used for a time, the hemorrhage was controlled by ligatures. The vagina was left entirely open, strips of iodoform gauze being passed through the abdominal cavity and out through the vagina. The patient had made a good recovery.

"*Coccygodynia. Report of a Case Cured by Removal of the Coccyx.*" —Dr. Ralph Waldo read a paper with this title, and in connection with it exhibited some small pieces of ossified material which had been found in the ligaments on either side of the coccyx.

The case had been referred to him by Dr. Malleson in March of the present year. Some months ago the patient had a fall on the stairs, and was confined to bed on account of pain and a fever which at times reached 103°. She did not know that the coccyx had been injured, and after trying all the ordinary methods of treatment in the hope of relieving the severe pain over the coccyx, she entered the Lebanon Hospital, and an examination under ether showed the uterus and appendages to be normal, but there was evidently an ununited fracture of the coccyx. On March 16 the operation for the removal of the coccyx was performed. In these operations on the spine, it will be found that just as one cuts down to the bone, and begins to use the bone forceps, the wound is apt to suddenly fill so quickly with blood as to lead to the supposition that some large artery has been cut; but in reality the hemorrhage is venous, and is best controlled by making pressure with sponges for a few minutes. The easier method of operating is to begin from below and work upward, but it must be remembered that the rectum lies against the coccyx, and is liable to be injured. In this case he closed the wound entirely, merely placing several pieces of silk-worm gut at the bottom of the wound. These were removed after two or three days, and at the end of the seventh day, primary union, having been secured, the sutures were removed. The bowels should be moved not later than the third day, and the stools should be quite soft. The rule in these cases is not to get primary union, but much depends on strict antisepsis and the after-treatment.

Coccygodynia was first described in 1844 by Dr. Mott, of this city, as a separate disease, but it did not then attract much attention until 1861, when Sir James Simpson wrote quite extensively on it. When the operation is done for neuralgia the results are usually *nil*, and this has brought the operation needlessly into discredit. The result is far different, however, when it is done for fracture. This patient had no coccygodynia by the second day after the operation.

Dr. Walker said he had only seen two cases of removal of the coccyx—one for injury produced by sitting down on the cross-arm of an elevated railroad seat, the other for an idiopathic coccygodynia, so-called, in which the pain was probably of uterine origin. The first case was completely successful; the second one was a failure. He had been present at the first operation, but there had been no special trouble from hemorrhage. When the coccygodynia is due to an injury, the removal of the coccyx is about the only measure likely to give relief, but when it is of reflex origin, the result of the operation is always very doubtful. He would prefer to treat the latter class by electricity, one electrode being placed against the cervix, and the other on the coccyx or in its neighborhood.

Dr. Stowell recalled a case in which the patient fell through a floor astride of a cross-beam. She suffered for about a year and a half, and then improved so much that no further treatment was demanded.

Dr. Mallet referred to a case in which this operation had been done six weeks ago. The patient was a woman, twenty-seven years of age, who seven years ago fell out of a window, when three months pregnant, and struck on a brick. There was no special trouble until after the birth of a twelve-pound baby; but since then, sitting had been extremely painful. The removal of the coccyx was very easy, and was attended with very little hemorrhage.

Dr. Waldo, in closing, said he would certainly advocate milder methods of treatment, such as electricity and counter-irritants, before resorting to an operation. He did not know anything much more annoying than a persistent coccygodynia, and if due to injury it is most easily cured.

Dr. D. E. Walker read a history of "A Case of Double Pyosalpinx and Ovarian Abscess, following Intra-Uterine Medication." The patient, Mrs. B., thirty-nine years of age, was married for the second time in 1890. Menstrual was normal up to two years ago, since which time it had been moderately painful, and the flow much more profuse. She had had one child, about ten years before. On account of the excessive menstrual flow, a trachelorrhaphy was performed in October, 1891, but this giving no relief, she applied in November, 1892, to a well-known surgeon, who employed intra-uterine treatment of some kind. She received eight applications in all, the last one on November 23. She suffered pain after each application, but after the last one she was ill for seventeen days, and suffered similarly during the next two menstrual periods. After this there was not much pain, but the slightest exertion produced a dragging sensation and a sense of weakness. Examination on May 1, 1893, showed a large, irregular and tender mass, filling the pelvic cavity, and on May 18, after a consultation in which only one physician ventured to make a diagnosis, a median incision was made. This exposed two large ovarian abscesses, holding from one pint to a pint and a half of pus. Their contents were drawn off separately with a trocar, and the wound dressed in the usual manner after inserting a glass drainage tube. Since the operation the temperature had not been above 101°, and to-day she was out of bed for the first time. The speaker said it was highly probable that the intra-uterine medication caused these abscesses. The case proved that absence of pain in pyosalpinx is no just cause for refusing to operate, and emphasized the fact that too much care cannot be taken in any surgical procedure, as to cleanliness of the patient, the instruments, and the operator. He believed that many cases of pyosalpinx and ovarian abscess originate from the use of dirty syringes at confinements, and from lack of cleanliness, even among the better classes, during the menstrual periods.

Dr. Waldo inferred from the thickness of the abscess sacs that the disease had probably existed for a long time, and that therefore the intra-uterine medication did not have much to do with the case; but he did not wish to be understood as not believing that improper intra-uterine medication does cause septic endometritis, and sometimes also pyosalpinx. He did not believe that any living person could, strictly speaking, sterilize his hands.

Dr. Cladeck referred to a case in which a woman was admitted to the German Hospital in a dying condition, suffering from peritonitis. She alleged that a midwife had given her an intra-uterine injection of salt water and white oak bark. The autopsy showed general peritonitis, and a double pyosalpinx of long standing. At the trial the midwife was acquitted, her defense being that she had treated the girl simply for amenorrhea. While there was very little doubt that an attempt had been made to produce an abortion, the amenorrhea was probably due to the condition of the tubes.

The president said that while the case reported in the paper failed to prove conclusively that the intra-uterine treatment was the direct cause of the salpingitis, it was very suggestive with reference to the proper mode of making intra-uterine applications.

Dr. Walker, in closing, said that as the abscess sacs were much shrunken from long immersion in alcohol, one could not tell at present much about the thickness of their walls in the fresh state. The fact that there was no febrile action following the trachelorrhaphy would seem to him to indicate that there was no such trouble at this time.

EMPYEMA IN CHILDREN, TREATED BY VALVULAR DRAINAGE.

Dr. W. L. Stowell read a paper with this title. Empyema in children, the author said, was much more frequent than is often stated. Trousseau was the first to give paracentesis thoracis an extended trial, but to Bowditch is due the credit of securing the general acceptance of this operation by his earnest advocacy of it in 1850. A successful operation on a child of twelve months had been reported. Secondary pleurisies are often purulent, pneumonia being the most common cause of empyema. Before reporting the cases in detail, the author stated that air did no harm, and disinfectants little good, in the pleural cavity, and that in simply removing the fluid, we did not do our whole duty.

Case I.—A child, sixteen months old, had a lobar pneumonia with a temperature of 104°. The temperature fell to normal at the end of two weeks. One month later, May 21, the child was peevish and the temperature rose to 101.5 and remained so. Later on, a pleuritic effusion was detected, and on June 19 one pint of pus was evacuated, a drainage tube inserted and antiseptic irrigations used on alternate days. The temperature fell to 99.5°. About two weeks after this, no more pus being discharged, the tube was removed, but while dressing the wound a few days later, the child cried and coughed. This re-opened the wound, and a large stream of pus shot out, probably from a pocket not reached at first. But the temperature kept up, and after three days of severe diarrhea the child died of septicemia.

Case II.—A marasmic child, one and a half years old, had a double broncho-pneumonia in November, and a relapse in February, and exploratory puncture then withdrew pus. Pending an operation, he was given good food, malt, and cod liver oil, and to his surprise the child steadily improved, and by May 3 the effusion had disappeared on the left side, although one was beginning on the right side. Chloroform was given, a free incision made, and a drainage tube inserted. The pleural cavity was occasionally irrigated, and convalescence was steady but slow. This case shows a possible result, but not one sufficiently frequent to warrant such treatment.

Case III.—A German girl, five years of age, when seen on December 30 had a temperature of 103°, a pulse of 150, and a croupous pneumonia of the left upper lobe. It resolved in ten days, but five days later there was a return of the fever, the skin was sallow, the pulse small, the breathing rapid, and there were all the indications of sepsis. Two ounces of pus were removed by puncture, and on January 17, on making an opening into the chest, the lung was found completely compressed and carnified. A bacteriological examination of the pus at the Loomis Laboratory showed a pure culture of the diplococcus of pneumonia. An ordinary rubber drainage tube with irrigations of boracic acid solution were used for two or three days, and the respiratory murmur improved in the lower lobe, but not in the upper. At this time, Dr. A. H. Smith happened to speak to him about using a valve in the chest wall in cases of pneumothorax. A soft collapsible valve was attached to a small piece of hard rubber tube at an angle, and to this was attached a soft rubber tube. The granulations soon made it fit tightly to the wound, and a soft pad of gauze was placed around the tube. It was removed in six weeks. With each inspiration a few drops of pus came out, but no air returned, so that every breath tended to promote drainage, and induce expansion of the lung. He considered the result in this case very satisfactory.

Discussion.—Dr. J. E. Winters opened the discussion. He said the cases just reported emphasized some very important points connected with the subject of empyema in children. Thus, it is unquestionably true that pneumonia is the most frequent cause. A few years ago it was thought when cases of empyema came to our dispensaries with a history of having had pneumonia, that it was proper to question the correctness of the original diagnosis. Now, we know that it has been almost absolutely proven by pathological investigations that the germs found in pneumonia are invariably found in empyema. Within the last two years, he thought cases of empyema following pneumonia had been exceedingly prevalent. The tube should be dispensed with at the earliest possible moment. At the time of the incision he favored very thoroughly cleansing the pleural cavity, although this is against the usual teaching. There are of course cases where irrigation immediately after the operation might be unwise, but he had never met with such a case, and he had used irrigations many times. He believed the success of the after treatment was much affected by this irrigation, as masses of fibrin and pus were often removed in this way, which would have been otherwise left behind. But unless there is some special indication, this irrigation should not be repeated. The opening in the chest should not be less than one and one-half to two inches long, and made in the intercostal space. Very often the tube can be removed with perfect safety after three or four days; rarely more than ten days or two weeks is necessary, as the opening will usually remain patent long enough without continuing the tube for a longer period. The tube is a source of irritation, and increases the discharge of pus. Many advocate resection of one or two ribs, but the necessity for this is an indication of a late diagnosis and a neglect to institute proper treatment. Where the diagnosis is made early, he did not think a case ever existed which required this measure. He had done sixty or seventy operations, even on children as young as eight months, and every child had perfectly recovered except the three operated upon within the last ten days. He thought the majority of empyemas are circumscribed, although at the recent meeting of the American Pediatric Society it was stated that circumscribed empyemas in children were rare.

Dr. Merriam reported a recent case in which a child of five years had a croupous pneumonia followed by pleurisy. On May 1. the chest was opened, and the cavity washed out, and a tube inserted. This was removed just before the end of the fourth week. The child had done well, but there was still a slight curvature of the spine.

Dr. Kohn was reminded of a case he saw about a year ago—a boy, eleven years of age, with a double empyema following an ordinary pleurisy. The patient was seen from the very commencement, and as soon as flatness was detected on both sides, he attempted to remove the fluid with a surgical pump. He removed what he thought was the entire contents of the chest on both sides, but the symptoms became aggravated. Another exploratory puncture withdrew fluid which was not only purulent but markedly fetid. As the patient had poor surroundings, he was sent to the Mount Sinai Hospital, and recovered perfectly after resection of the ribs, although he appeared almost moribund on admission. The case showed that it was a mistake to employ such new-fangled instruments, and also showed what prompt and energetic treatment could do. He felt positive that the defective pump had allowed air to enter the pleural cavity, and had thus been responsible for converting a serous pleurisy into an empyema.

Dr. Proben thought it impossible to make the diagnosis even with the history and physical signs without resort to hypodermic puncture. Most cases of double empyema are shown at autopsy to be complicated with pericarditis, although there have been no clinical symptoms of the latter condition.

One year ago he assisted Dr. White in an operation for empyema in an adult. The attending physician was advised not to wash out the cavity, but he did so with a 1:5000 solution of bichloride, and in twenty-four hours a metastatic abscess formed at the elbow joint and nearly proved fatal.

The president said that the special point which interested him in the paper was the question of valvular drainage. Various modifications of this method had been tried by different observers, but they had been generally discarded. Where the lung is very much compressed it would seem that by limiting the amount of in-going air the forcible efforts at respiration might more quickly expand the lung, but in ordinary cases it hardly seemed to him necessary. He thought the consensus of opinion was against irrigating the pleural cavity unless the discharge were fetid; flocculi and adhesions might be broken up with a catheter or dressing forceps, and general observation has shown that the treatment is prolonged by irrigating the pleural cavity.

Dr. Stowell in closing the discussion said that the tube was reintroduced in his case because of the fresh accumulation of pus and increased temperature. This explained the length of time the tube remained in. It is a mere matter of physics about the action of the valve; if you keep the air out of the cavity you favor the formation of a vacuum, and hence the expansion of the lung. He had been in the habit of employing one irrigation immediately after the incision.

AMERICAN MEDICAL ASSOCIATION.

Forty-fourth Annual Meeting, held in Milwaukee, Wis., June 6, 7, 8 and 9, 1893.

FIRST DAY, TUESDAY, JUNE 6.

The general session was called to order by the Chairman of the Committee of Arrangements, Dr. Wingate, at 11 A.M., in the Academy of Music.

Prayer was offered by Rev. Henry T. Secrist.

Address of Welcome.—His Excellency George W. Peck, Governor of Wisconsin, delivered his address of welcome to the State. He had been commissioned, he said, by nearly two million people whose good fortune it was to live in Wisconsin to extend a greeting to the members of the American Medical Association. Wisconsin, he said, was a State that most people had heard of, and more would hear of in the future. Besides containing within its borders everything necessary for man's comfort except gold, it was the healthiest place to be found on the habitable globe. Doctors were entirely unnecessary, and the Governor did not know why they ever came to this State, or how they made a living after they had come. The only reason there were any cemeteries here was because some people occasionally moved from other States after disease had got such a tight hold of them that Wisconsin had not time to cure them. Milwaukee, whose privilege it was to entertain the Association this year, was the eldest and fairest daughter of Wisconsin, and it was meet that she should greet her mother's guests and act the part of hostess. But the mother herself did not want to be forgotten, and she wanted her guests to remember that there were many other daughters nearly, if not quite, as fair, who would gladly offer a warm welcome to any of those present who could or would visit them.

The Hon. P. J. Somers, Mayor of Milwaukee, then delivered the address of welcome to the city. He spoke of the greatness of the country in material matters and held that it should be the aim of our lawmakers to make it equally a leader among the nations of the earth in everything pertaining to the health of the community and ot the individual. It was the duty of commonwealths and of municipalities to hold up the hands of members of the medical profession at all times, and especially during periods of threatened invasion of epidemic disease ; and any public officials that did not do so to the full extent of their powers were guilty of nothing less than treason. In closing, the speaker expressed his best wishes for the success of the meeting, and extended a cordial greeting and welcome to the Cream City of the Lakes.

Dr. Wingate, on behalf of the Committee of Arrangements, presented a silver gavel, made in the shape of a brick, to the President of the Association, with the hope that he might keep it as one of the pleasantest mementoes of a long and honored life.

The President's Address.—Dr. Hunter McGuire, of Richmond, Va., then delivered the annual address. Fifty years ago Henry Clay, while crossing the Alleghanies on his way to his western home, stopped his horse on the summit of one of the highest ranges and gazed intently down into the beautiful Virginia valley whence he had ascended. To a companion who asked him why he stopped, he replied : "I am listening to the tramp of the millions coming across these mountains to fill the villages and prairies of the West." The multitudes now living and toiling in all parts of our land bear witness to the prescience of this great statesman. Our country, though young, is yet old. The rush and activity of its people have expanded years into decades, decades into centuries, and centuries into thousands of years, so that even now our institutions, young as they really are, have all the dignity and solidity of age. America is already among the first nations of the earth, and medical men here should do their part, and should see to it that their associations do not fall behind the other organizations of the country.

The prime object of the American Medical Association is to study the origin of disease, its nature, and its course, and to find out how best to prevent it and how to cure it when efforts at prevention have failed. But, secondarily, it is the duty of every member of the association to aim at securing for the organization the greatest efficiency in its working. It is wrong to assume that disease and death are punishments inflicted upon man for his misdeeds. It is true that disease often does, as a Nemesis, dog the footsteps of folly and crime. Yet that it does not attack the wicked alone, and that the innocents suffer as well, we have the word of the Great Physician himself. We are all subject to the workings of organic laws and to the penalties of infraction of these laws.

Medical men must gird themselves for combat against the spread of disease, and their first fight must be with those who prevent interference with their domestic life by the sanitary authorities. The individual must learn that his house is not his castle when it exists as a menace to the health of the community, and he must be taught that the sanitary police of towns and dwellings is essential in these days, and cannot be hampered in its workings by any man's jealousy of interference in his own house when disease is present. Then, too, the profession has to overcome the apathy of the lawmaker, and must secure legislation looking to the establishment and equipment of State and local boards of health. We have already accomplished much in the way of preventing outbreaks of disease and of restricting its spread, but we have yet much to do in this direction. There is a vast field for medical research in the study of disease in the United States. Malaria is one of these diseases. We know how much can be done by drainage in suppressing it, and much has already been done where drainage is possible. But a great problem yet confronts us in the attempt to drive out malaria from the Lower Mississippi Valley, where the flat country, the bayous, and the marshes present such a fertile breeding-ground for the germs of this disease. This is a problem with which the civil engineer is chiefly concerned, but his efforts can be greatly aided by the advice and counsel of the skilled physician. The speaker urged upon his hearers the necessity of establishing medical societies in every county, city and township, and in every community where there are enough doctors to form such associations. The organization of the American Medical Association has improved each year, and he hoped that this improvement would continue. He argued that the special work be left more and more to the Sections, so as to give more time for the transaction of necessary business in the general sessions.

The Committee on Revision of the Constitution and By-laws, which was to make a report this year, would present some new features, and had left out some which he thought might better have been retained. He was glad that the report was not to be acted upon this year. The Committee on Revision of the code will also ask that the settlement of the question be postponed until the next meeting. The speaker had his own views of this code matter, but he would not express them at this time. He would, however, make one suggestion, namely, that the entire subject of the revision of the code be referred for final decision to the different State societies in affiliation with the association.

The question was one of such importance that it ought to be settled only by a full, free and equal vote of every man concerned. This could not be had at any meeting of this association, for it was inevitable that wherever the meeting was held the local representation should be larger than that from a distance, and consequently the matter would be decided practically by the votes of members from a limited section of the country.

National Quarantine.—The question of national quarantine was one of great importance to every part of the Union. The people demand the passage of such laws as may render us safe against invasion by epidemic diseases such as cholera and typhus fever. The latter disease had recently crept into New York, but, thanks to the efficiency of the Board of Health in that city, had not become epidemic.

Last Summer the country was threatened with an invasion of cholera, but escaped by a happy combination of circumstances rather than through the workings of a scientific quarantine system. Experience has shown that a strict quarantine will keep out contagious disease. During the Civil War all the Southern ports were closed, and none of them was visited by yellow fever, a fact, by the way, which proves conclusively that this disease is not indigenous in the Southern States, but is always brought from without. The only open port in the South at that time was Wilmington, N. C., which had practically free communication with the outside world. Here yellow fever, imported from the Bermudas, raged with great fury. It will not do to leave the matter of quarantine in the hands of municipal authorities, for local interests are always paramount and will never be allowed to be sacrificed to those of distant communities. The doctrine of States Rights must go down before the necessity of a national quarantine law. This is a question that concerns the entire Union, and not merely one city or one State. If a pestilence should sweep our country, it would cost more in life and property than war with a foreign power, and we should take measures in time to prevent it. The speaker was not in favor of a quarantine of detention, but one of prevention. The modern system of quarantine rests not upon exclusion, but upon the sound principles of maritime sanitation. He referred to the quarantine at New Orleans as a model one of the kind; its efficiency is shown by the fact that yellow fever has been kept out of that city for twelve successive years, and yet the commerce of the port has not been interfered with.

He referred to the resolution, passed at a previous meeting, calling for the creation of a Department of Public Health, with a secretary having a seat in the cabinet. At the last meeting of the American Public Health Association a somewhat similar resolution had been passed. But as yet Congress had done nothing in this direction. Bills had been introduced in both houses, but had not yet reached a hearing.

In concluding, Dr. McGuire expressed his appreciation of the honor that had been conferred upon him in his election to preside over this meeting of the association, and hoped that the members would look with indulgence upon his shortcomings.

Upon motion the address of the president was referred to a committee for consideration of the recommendations contained in it.

Mr. Ernest Hart, editor of the *British Medical Journal*, was then introduced and made a few remarks. He said that he brought a greeting to this society from the British Medical Association, from which he came as a delegate. The proceedings of the American Association were watched with deep interest by medical men in Great Britain, and the efforts of American physicians to uphold a worthy ethical standard called forth the sympathy of their British *confrères*.

The report of the treasurer showed a balance on hand of $5,844.78.

The Committee on Secretary of Public Health reported progress Congress had adjourned without taking any action on the bills which had been introduced creating a department of public health, and the bills were still in committee. It requested that the association continue its efforts to secure the establishment of this department of the National Government. The report also asked for the appointment of a committee of ten to wait upon President Cleveland, and request him to incorporate a recommendation to this effect in his next annual message to Congress. On motion the report was adopted and ordered to be printed in the journal. The chairman was also empowered to fill any vacancies in the committee, which it was announced contained some dead timber that had better be gotten rid of.

The Pan-American Medical Congress.—Dr. Charles A. L. Reed, chairman, presented his final report. The organization of the congress has now been completed in every State and Territory of the United States, and in every other country and colony in North and South America, including the West Indies and Hawaii. The President of the United States will open the congress in person, and will receive the delegates at the White House. The titles of several hundred papers, and in most cases the abstracts of the papers as well, have already been received, so that the success of the meeting is assured. Many advance registrations have already been received, and the committee desired to thank those who had responded thus early to their appeal, and had lightened their labors in that way. But a large sum is yet needed to meet the absolutely necessary expenses of organization, and Dr. Reed urged those who had not yet done so to send their subscription fees of $10 to the treasurer of the congress. The committee thanked the association and the medical press of the country for efficient aid in promoting the success of the congress.

SECOND DAY, WEDNESDAY, JUNE 7.

The meeting was called to order by the president.

Invitations were received from Asbury Park and from Hot Springs to hold the next meeting in their respective cities.

Address on General Medicine.—Dr. Hare delivered the address. He said that a correct diagnosis is necessary to successful treatment. In arriving at a diagnosis a microscopical examination of the blood is useful, as is also the chemical examination of the contents of the stomach in certain cases. At this day there is no excuse for dodging, and the shotgun prescription is a confession of ignorance. Improvements in diagnosis and in treatment have kept pace with each other, and although the gains have not been by leaps and bounds, yet they have been sure. The speaker discussed the subject of anæmia and its treatment. It is well known that what was useful in some forms of anæmia was not so in others, but no satisfactory reason for this was put forward. It is now known that in one form of the disease there is a deficiency in the number of the red blood-corpuscles, while in another the trouble is rather in a reduction in the amount of hæmogloblin. It is in the latter form that iron is useful. In passing, the speaker protested against the frequent abuse of iron, against the giving of the drug, when it is not indicated, and against the exhibition of too large doses, as there are only about thirty-nine grains of iron, all told, in the blood, and doses of ten or twelve grains a day are absurd.

Many conditions formerly regarded as diseases are now known to be only symptoms. Asthma is one of these conditions, and in every case the cause, though obscure, will always be found if sought for. Another condition which is gradually passing from the dignity of a disease to the place of a symptom is diabetes mellitus. Shock is often wrongly treated because it is not understood. Death rarely occurs in the first stage of shock, that of vagus irritation ; in the second stage the whole arterial system is relaxed, and this is the most dangerous condition. Here belladonna is useful. In epilepsy we have found how the bromides act, so that now they are given scientifically instead of empirically. Quinine was formerly given empirically in malaria ; now it is known that the drug kills the germ of the disease.

Among recent advances in therapeutics the speaker referred to the use of animal extracts, especially of thyroid extract in myxœdema and cretinism.

Report of the Trustees of the Journal.—The trustees said they had it in mind to improve the *Journal*, but had been unable to do so on account of lack of funds. The expenses of the *Journal* had been a little over twenty-four thousand dollars, and the receipts between sixteen and seventeen thousand, leaving a deficit of some $7,500. There were about five hundred subscribers, and something over four thousand copies were issued to members, but about five hundred of the latter would have to be cut off.

Report of the Committee on Revision of Constitution and By-laws.—The Committee submitted the draft of a new constitution and by-laws which it thought would, if adopted, promote the development of the association and advance the interests which it represents. The key-note of the proposed changes, the committee explained, was "the advancement of scientific medicine as represented in the Sections." The Executive Committee of the various Sections form collectively a business committee of the association. It shall be the duty of this committee, the new constitution provides, to seek the removal of any obstacles that interfere with the cordial co-operation in the association of all competent, honest practitioners of rational medicine throughout this country. Further, this committee shall make and present the nominations for officers and standing committees of the association, and recommend the time and place of the ensuing meeting. Thus the practical government of the association is taken away from the members by States and placed in the hands of the same members grouped as specialists. It was believed by the Revision Committee that the officers and place of meeting so obviously affect the prosperity of the Sections that it would seem wise for the latter to make the recommendations. Radical changes are also made in the conditions of membership, which is hereafter to be limited to members of the several affiliated State medical societies. Any man who is a member in good standing of a recognized State society is entitled to membership in the National Association upon payment of the dues. The question of his worthiness is left absolutely to the State society, the association requiring only that he pay his dues. The time allotted to the general session is to be greatly reduced, while that devoted to Section work is stretched out to the greatest possible extent.

In concluding its report the committee expressed a hope that it would be adopted, believing that the new features would provide for more satisfactory transaction of all business coming before the association. By adopting this new constitution the society would have provided for the study of every question by experts previous to its consideration by the general body. It would thus be able to act with more tact and wisdom. Further, the adoption of the proposed constitution would promote the best interests of the association, of its Sections, of scientific medicine, of the several State societies, of every intelligent practitioner of medicine, and hasten the organic unity of the profession of the entire North American continent.

The report was at first signed by all the members of the committee, namely, Drs. H. D. Holton, Leartus Connor, Daniel E. Nelson, Benjamin Lee, and H. D. Didama. The latter gentleman subsequently withdrew his name, but this did not move the other members of the committee, who stated that they were more than ever convinced that the alterations proposed are vital to the best prosperity of the association. They therefore commended the new constitution to the favorable consideration of the society.

Dr. Didama made a minority report. After having signed the original report he had changed his mind and now disapproved of some of the radical changes therein contained. He believed the government of the association should rest in the hands of the delegates from the different States, and he also believed that the taking from them of the right to appoint the Nominating Committee would be unfair, unjust, and unsatisfactory.

According to the provisions of the constitution both reports will lie on the table until the next annual meeting.

The Committee on Revision of the Code then made its report. It asked for further time to make its full report, but in the meanwhile it would suggest:

1. The omission of all sections of the code that describe the obligations of patients to their physicians and of the public to physicians. The reason for this suggestion is that the Code is not designed either for patients or the public, and so the sections are superfluous.

2. To place in the same list with the copyrighting of medical books and other similar works, the patenting of all mechanical appliances used in medicine or surgery. The code says nothing respecting the copyrighting of medical publications, and the committee could find

no good reason why it should say anything respecting the patenting of mechanical devices.

3. To define more accurately the term "consultation," since the present conditions of medical consultation differ widely from those of forty or more years ago. The committee recommended the alteration of Article IV., Section 1, of the code to read as follows: "A thorough medical education furnishes the only presumptive evidence of professional abilities and requirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as the good of the patient is the sole object in view, and this is often dependent upon personal confidence, no intelligent practitioner who has a license to practice from some medical board of known and acknowledged legal authority to issue such license, and who is in good moral and professional standing in the place in which he resides, should be refused consultation when it is requested by the patient.

4. To rewrite the code in phraseology so plain as to make it a practical common-sense document for daily guidance.

5. To have the code taught as part of the regular curriculum in medical schools.

This committee was the same in constitution as the one on revision of the by-laws, and in this, as in the other, Dr. Didama made a minority report. He said it was no excuse to strike out part of the code to say that it was not made for patients and the public. The public should be taught the code so that they may know their duties. The minority report was in brief a protest against any revision of the honored Code of Ethics of the American Medical Association.

THIRD DAY, THURSDAY, JUNE 8.

The session was called to order by the president at eleven o'clock.

The Address on Surgery was delivered by Henry H. Mudd, of St. Louis. The subject which the orator chose for his address was "Surgical Problems." It is not the new that is always the most valuable in surgery, and often what is thought to be new is in reality old. The three problems which the speaker proposed to discuss were drainage, the radical cure of hernia, and appendicitis.

Drainage.—The question of drainage and drainage-tubes is one that has been discussed by leaders in surgical work for many generations, though it is only within perhaps the last twenty years that the data necessary for the solution of this problem have become in a measure definite. Since the necessity for surgical cleanliness has become a dogma we have learned that drainage is not an essential to the rapid healing of even extensive wounds. No intelligent surgeon will discard the use of drainage in the treatment of suppurating wounds. The question has been narrowed down to that of the use or abuse of drainage in aseptic operation wounds. Union by first intention may be expected in a clean, incised wound, not vitiated by applications, with hemorrhage controlled, with perfect approximation of the divided tissues, and with rest of the individual and of the injured part. But with all these conditions fulfilled, there still remain two essential factors to success, viz., a vital power in the individual sufficient to insure the establishment of initiative processes and a proper resisting power of the parts involved in the wound. The speaker did not believe that we could dispense with the drainage-tube in all the so-called clean wounds, for the above conditions cannot always be secured. The question of hæmostasis is often a serious one, as it takes time and thus prolongs the period during which the patient is under the influence of the anæsthetic. Perfect approximation of the incised tissues also consumes valuable time. Thus, while healing without drainage is the ideal wound treatment, it is not always to be desired if it can be secured only at the expense of the patient. The danger of infecting the wound through the drainage-tube is more apparent than real, when the latter is removed at the end of from one to three days. It is not necessary to retain the tube until all secretion from the wound has ceased, for the tube is itself an irritant and will often keep up a discharge that would otherwise soon dry up. Soap, water and heat excluded, the speaker would rather dispense with all antiseptics than with the drainage-tube in certain cases, yet the use of the latter is becoming more and more limited.

Radical Treatment of Hernia in Children.—A permanent cure of hernia is often brought about by the use of a truss, and this measure should always, when possible, be given a trial. In the case of adults, however, the conditions are different, and a radical cure by means of the truss is an improbable event. The very fact of the multiplicity of methods advocated for the radical treatment of hernia is a proof that the problem has not yet been satisfactorily solved. The mortality attending the operation is so low (about one per cent.) as to justify its undertaking. If the majority of cases are permanently cured, making all necessary deductions for ultimate relapses, it may be stated that permanent recovery ensues in from sixty to eighty per cent., a sufficient number to justify the operation. Of all the methods that of Macewen alone permits of the retention of the hernial sac, for it is generally agreed that the obliteration of the sac is essential to a perfect result.

The important point in guarding against the recurrence of the hernia is the destruction of the normal irregularity in the abdominal wall formed by the transversalis fascia and the muscles at the internal abdominal ring. This can be most effectually accomplished by closure of the canal and removal of the cord to a new point for its passage through the abdominal wall. Operators differ in their choice of the opening for the cord, but the preferable point would seem to be one to the outer side of the canal near Poupart's ligament. In certain cases, however, it may be better to carry it well in toward the median line. The union of the tissues of the weakened abdominal wall should be sought by primary union, rather than by granulation, as the former is stronger. The speaker preferred buried animal sutures to permanent sutures of silk or wire. The following were Dr. Mudd's conclusions: 1, the mortality should not deter us from encouraging the operation for the radical cure of hernia; 2, the percentage of recoveries is sufficient to justify it; 3, the removal of the sac is an essential feature of the operation; 4, the approximation of the tissues in the weakened abdominal wall is no less important; 5, the surgeon cannot urge the operation in every instance, but may perform it in the great majority of cases where a truss does not sufficiently control the hernia.

Appendicitis.—The treatment of this disease is still an open question and one that is most difficult to decide, because of the difference in individual cases. The anatomical and clinical investigations of recent years have demonstrated very clearly that the American view of the pathology of inflammation in this region is correct. Primary inflammation of the appendix is frequent, and it not only produces ulceration and destruction of this portion of the bowels, together with circumscribed or diffuse peritonitis, but often also determines a perityphlitis and a typhlitis with engorgement and thickening of the walls of the ileum. The vast majority of inflammations in the right inguinal region originate in the appendix; they result not so much from concretions in the appendix as from irritative catarrhal obstructive conditions which produce engorgement of its mucous coat and thickening of its wall. The presence of irritating fluids containing the bacterium coli of fæcal matter or of a foreign body may excite inflammation, as may also a disturbance of the circulation resulting from a bend or twist in the appendix, or from the pressure of a distended bowel. The inflammation caused by this disturbed circulation may disappear upon the removal of the exciting condition, and resulting congestions may be evanescent in character. An ulcer of the appendix, caused perhaps by a foreign body, may lead to perforation without giving rise to any previous symptoms of inflammation or causing much pain in the abdomen. Circumscribed peritonitis may arrest the action of the ileum and colon, and by agglutination of the parts establish a tumor with doughy or elastic outlines, suggesting an intra-peritoneal abscess. This tumor may disappear as the peritonitis subsides and peristaltic action becomes re-established, or it may cause death by rupture and escape of its contents into the peritoneal cavity. The duration of a given case cannot always be predicted from the symptoms, for a free appendix may rupture and discharge its contents into the abdominal cavity, causing death within a few hours of the first warning symptom. A severe colic and other signs of grave local trouble may attend a case which rapidly and permanently recovers. The situation of the appendix is a fact of some moment in the outcome of inflammation, for when it is behind the head or body of the colon the result is generally much less grave than when it hangs somewhat freely from the colon, and is in more intimate relation with the small intestine. The latter condition exists in about seventy per cent. of all cases, but as an offset to this it has been found that inflammation occurs less frequently in the appendix surrounded by the small intestine than it does in that which is held in close relation with the colon. There is grave danger in waiting either for the recession of the inflammation or for the development of a well-defined abscess.

Since we can never predict with certainty the result of the inflammation from the signs present in any given case yet we all know that many cases with grave symptoms recover without operation. If a definite rule for action must be outlined, then logical deduction and chemical experience will demand an operation in every case of appendicitis, or they will deny operative interference until perforation has formed and is seeking exit by an external opening. The first alternative is very often denied the surgeon, the patient preferring the chances of recovery without cutting; yet the safe operation is made only early in the course of the disease, or later when the abscess is clearly defined. The intermediate period is one of danger to the patient and of anxiety to the surgeon; we must wait for a definite solution of this difficult problem until more voluminous statistics are at hand, and these, deceptive as they are, must finally determine our line of action.

Three Factors of Success in Surgical Operations.—The fate of wounded tissue, whether the injury has been inflicted by accident or by design, depends upon three factors, namely: 1. The vital power of the individual; 2, the condition of the parts involved; and 3, the amount and character of the bacterial infection. The appearance of antiseptic surgery was an event of vast and overshadowing importance, and surgeons fell so far under the influence of the new doctrine as to forget that other conditions entered into the determination of the results of their operations. But nature's laws are persistent and we are learning again that the vital resisting power of the individual is a factor that cannot be overlooked. This mysterious power has ever been a source of confusion as well as of strength to the surgeon. It has won his battles in spite of ill-advised surgery, and it has brought death when everything possible to avoid it has been done. The local resistance established through the action of phagocytosis at the site of the wound supplements the surgeon's efforts for antisepsis and makes possible the grand success which has attended the enforcement of these modern methods of cleanliness. The speaker dwelt with special emphasis upon the importance of not overlooking, in our enthusiasm for antisepsis, the two other great factors, to wit: the vital power of the individual and the local resistance of the issues involved. No one can predict with absolute certainty the result of any surgical interference in the human body. The most skillful surgeon who has taken advantage of everything his knowledge and experience could suggest to make his operation a success will occasionally meet with defeat, and an operation is therefore not to be lightly undertaken, and it is only the stence of serious disease that will justify grave surgical procedures.

Address on Cholera.—Mr. Ernest Hart, of London, then read, by invitation, an address entitled "Cholera, an exclusively Water borne Disease." This is, he said, a filthy disease caused by dirty people in dirty places and spread by dirty water. Cholera may be drunk, or it may be eaten, but it cannot be caught. It does not spread from person to person, but its diffusion occurs through the medium of food and drink. If the water supply of a locality remains uncontaminated, cholera cannot rage here. In epidemic form every cholera death is a death by poison and the municipal authorities or water companies should be held responsible in case of epidemic, and should be proceeded against by criminal indictment or by civil action for damages.

Quarantine, maritime, or land fumigations, sprinkling with antiseptic fluids and the like are useless. Maintain the purity of the water-supply and there need be no cause for alarm as regards cholera. The safeguard against the disease is purity of air and water but especially the latter, for cholera is a water borne disease.

Officers for 1894.—The Committee on Nominations reported the following: *President,* James F. Hibbard, Richmond, Ind.; *First Vice-President,* John C. Wyeth, New York; *Second Vice President,* I. N. Love, St. Louis, Mo.; *Third Vice-President,* Thomas Murrell, Little Rock Ark.; *Fourth Vice-President,* U. O. B. Wingate, Milwaukee; *Treasurer,* R. J. Dunglison, Philadelphia; *Secretary,* W. B. Atkinson, Philadelphia; *Assistant Secretary*, L. H. Montgomery, Chicago; *Librarian*, George W. Webster, Chicago; *Editor of Assocation Journal*, Dr. Culbertson, Chicago. *Trustees* to fill vacancy of those whose term expired this year: John B. Hamilton, Ill.; E. F. Ilgalls, Ill.; L. McMurtry, Louisville. *Members of Judical Council*: J. N. Quinby, Jersey City; J. McFadden Gaston, Atlanta, Ga.; A. F. Jonas, Omaha; H. J. Murphy, St. Paul. San Francisco was proposed as the place of the next meeting in May, 1894. But this suggestion called forth a strong opposition. It was held that matters of vital importance to the association were to be decided next year and it would be impossible to have a full representation at so remote a point.

AMERICAN SURGICAL ASSOCIATION.

Annual meeting, held at Buffalo, N. Y., May 30, 31, and June 1, 1893.

NICHOLAS SENN, M.D., President, in the chair.

Dr. M. D. Mann, of Buffalo, delivered the address of welcome.

A New Method of Direct Fixation of Fragments in Compound and Ununited Fractures.—The president's address was next delivered by Dr. N. Senn. The speaker said that while the adoption of rigid antiseptic precautions has reduced the mortality in the treatment of compound fracture from fifty to seventy per cent. to almost nothing, yet the mechanical treatment of compound and ununited fracture has undergone little improvement during the last decade. The principal object of the address was to make an earnest plea in favor of more frequent recourse to direct means of fixation in the treatment of compound and ununited fracture. The time is at hand when compound fracture should be treated upon the same principle as wounds of the soft parts, viz., the bringing into apposition and holding in contact by direct mechanical measures the different anatomical constituents of the wound until the process of repair is completed. In oblique fractures of the femur it is generally conceded that continued extension and external fixation do not succeed in preventing more or less shortening and angular deformity. Long-continued extension is followed by temporary, and often by permanent injury to the adjacent joints. Overriding of the fragments is often productive of harmful pressure upon important vessels and nerves. Displacement of the fragments and imperfect mobilization are the most important factors in the production of exuberant callus which so often impair the functional result. The displacement of detached fragments in comminuted compound fracture is often not recognized, and much less frequently connected without direct intervention; thorough disinfection is frequently out of the question without enlarging the external wound and free exposure of the fracture. Long confinement to bed is detrimental to the general health, and often the indirect cause of many fatal intercurrent affections. These evils attending treatment of compound fracture can be avoided in a measure by direct fixation of the fragments. This enables the surgeon to bring the fragments into accurate apposition and secure permanent retention, and it also enables him to disinfect every part of the wound and to arrest hemorrhage.

The history of directed immobilization of fragments was then reviewed. The different methods of suturing were then considered. The use of ivory cylinders and clamps was described.

The absorption of aseptic ivory and bone in the living tissues was then taken up. Investigation has shown that there is a limit to the absorption of aseptic absorbable bodies. The introduction of large and solid foreign substances overtaxes the absorptive capacity of the tissues, and either removal by operative treatment becomes necessary, or spontaneous elimination is sure to take place sooner or later. To overcome this objection the author recommended, as absorbable, intra-osseous splints—hollow, perforated cylinders of bone. The use of such cylinders does not interfere with the early formation of the intermediate callus from the medullary tissue. Such cylinders should be made of the shaft of the long bones of young animals, such as chickens, turkeys, or rabbits. Experiments and observation prove that bone or ivory used in the direct fixation of a fracture can be safely left in the tissues with the expectation that the material will become encysted and remain harmless, and that in the course of time it will be removed by absorption. Bone is observed more readily and in a shorter time than ivory. A hollow cylinder of bone inserted into the medullary cavity of a bone is removed completely by absorption in a comparatively short time. The same fate awaits a thin ring of bone embracing and holding in mutual uninterrupted contact two or more fragments in the treatment of compound and ununited fractures by direct fixation.

The most efficient way to prevent lateral and longitudinal displacement in oblique fractures of the shafts of the long bones is to bring the fractured surfaces in accurate contact and hold them in this position by an efficient absorbable circular support. The use of silver wire and other unabsorbable material for this purpose is objectionable. Catgut and other absorbable ligatures are not sufficiently durable. It had occurred to the author that such fractures could be retained almost to perfection after reduction by engaging the ends of the fragments in a ferrule or ring of bone or ivory. This will prevent overriding and undue shortening. Angular deformity and rotation can be prevented by appropriate external support. The results which have attended this method have been exceedingly satisfactory.

The method of preparation of the bone ferrule was described, and a number of the ferrules of different sizes exhibited. Three cases were reported in which the method had been employed. Case I. was an ununited fracture of the femur; direct fixation of fragments; union with fragments in good position. Case II. was an ununited fracture of the humerus resulting from extensive loss of bone; paralysis of musculo-spiral nerve; direct fixation of fragments by artificial impaction and bone ferrule, aided by catgut sutures; secondary nerve section. Case III. was one of compound comminuted fracture of leg; fixation of tibia with bone ferrule; fenestrated plaster-of-paris splint; suppuration; efforts at repair.

The speaker then detailed his experimental work with the bone ferrules.

Conclusions.—1. Direct fixation of the fragments is indicated in all compound fractures in which perfect retention cannot be secured by simpler measures, and in the treatment of ununited fractures requiring operative interference.

2. This method is also justifiable in the treatment of certain forms of subcutaneous fractures in which reduction and retention cannot be accomplished without it.

3. Free exposure of the fragments in compound fractures secures the most favorable condition for thorough disinfection.

4. Perfect reduction and direct fixation of the fragments are the most reliable prophylactic measures against delayed and non-union and deformity.

5. A compound fracture should be regarded in the same light as an injury of soft tissues, and should be treated upon the same principles, viz., accurate coaptation of the different anatomical structures and perfect retention by direct means of fixation, aided by an efficient external support.

6. Bone suture, metallic, bone, and ivory nails do not furnish the necessary degree of support and immobilization in the direct treatment of fractures characterized by a strong tendency to displacement.

7. The solid intra-osseous splint of ivory or bone, as advised by Heine, Langenbeck, and Bircher, is objectionable, because it interferes with the ideal production of the intermediate callus, and its spontaneous removal is beyond the absorptive capacity of the tissues.

8. The hollow, perforated ivory or bone cylinder, devised by the

author, answers the same mechanical purpose without the objections which have been charged against the solid cylinder.

9. The safest and most efficient means of direct fixation of oblique fractures is by a bone ferrule, which must be applied in such a manner that it surrounds both fragments.

10. Such a circular, absorbable, direct splint prevents to perfection lateral and longitudinal displacement.

11. Rotation of the limb below, and angularity at the seat of fracture, must be prevented by a carefully applied circular plaster-of-paris splint.

12. For fractures not requiring drainage the entire wound should be closed by buried and superficial sutures, as the bone ferrule is removed by absorption.

13. In suppurating wounds the bone ferrule should not be removed until direct fixation has become superfluous by the formation of a sufficiently firm union between the fragments.

14. The external splint should be applied in such a manner that it does not require a change throughout the entire treatment, permitting at the same time access to the wound should this become necessary.

15. Direct fixation of a fracture, combined with perfect immobilization, brings the different anatomic structures of the broken bone permanently into their former normal relations, preparing the way for the early initiation and speedy consummation of an ideal process of repair and the realization of a perfect functional result.

16. Should further experience demonstrate that bone is not sufficiently absorbable, the same kind of ferrules can be made of partially decalcified bone or chromicized catgut.

Dr. Roswell Park, of Buffalo, said that in discussing the paper he was under the disadvantage of not having seen the author's conclusions. He thought the method might be practiced with advantage where there is much displacement and difficulty in maintaining the fragments in position. In two or three cases he had used Volkmann's method of dovetailing the fragments together with advantage. In some cases he had used chromicized catgut or silkworm gut with good results. He had not used ivory except in the form of small pegs. In suturing the fragments through holes drilled through the bone, it is often difficult to bring the lower end of the suture around and tie it. It is easier to pass the suture around the bone by means of a modified aneurismal needle. It seemed to him that the application of the ferrule of Dr. Senn would require considerable disturbance of the soft parts, and might give rise to local necrosis.

Dr. F. S. Dennis, of New York, said that in the consideration of the management of compound fracture and ununited fracture we can eliminate entirely the question of sepsis. The surgeon can employ any of the methods suggested without the fear of septic complications. The method suggested by Dr. Senn is without doubt excellent in every way, but we can probably arrive at some simpler method of treating ununited fractures. He had been in the habit of resorting to drilling of the bone, and always with success. In some cases small ivory pegs have been driven into the drill-holes. Another method to which sufficient attention has not been given is that of tenotomy. This at once relieves the muscular spasm and gives comfort to the patient. There is then no muscle to contract and disturb the fragments. If physiological rest is thus secured, there is less liability to non-union. In simple fractures it is not a bad rule to divide the tendons at once.

There is no question in regard to the development of malignant disease in ununited fracture. The speaker had seen some fifty cases of sarcoma develop as the result of traumatism in bone, and these have usually been cases where there has been some movement in the fragments. Epithelioma has also been seen in cases where there has been a sinus running down to loose bone.

The amount of disturbance of the parts seems to be an objection to the use of the ferrule, but this might be obviated by dividing the ferrule into two parts and securing them together after application.

Dr. D. Forest Willard, of Philadelphia, remarked that at the Presbyterian Hospital of Philadelphia Dr. Allis and himself had been using methods of direct fixation where there is great tendency to displacement. In order to facilitate the application of sutures he had had made drills with an opening extending to the drill, and through this the suture could be readily passed. This saves much time. He had seen a number of cases of Gluck's ivory insertion, but in every case, with one exception, the ivory plug had been discharged or was in process of discharge. The exception was a case where the ivory plug had been passed into a metacarpal bone.

The method of dovetailing referred to by Dr. Park is valuable. The fragments may be held together by the use of screws. Dr. Allis uses steel screws for this purpose, which can be removed later if necessary.

The use of plaster-of-paris dressing is one of the most important elements in the treatment of compound fractures. To hold the parts at absolute rest there is nothing equal to plaster-of-paris. There seems to be something besides the absorptive power of the plaster which lessens the tendency to decomposition.

Dr. L. McLane Tiffany, of Baltimore, did not see how the ferrules could be used with advantage in comminuted fracture. The application of the ferrule in these cases is liable to cause separation of some fragments which might otherwise unite. In the three cases reported the ferrules seemed to be used simply as an adjunct to other methods. There is no method applicable to all cases, and often the method cannot be decided upon until the fragments are exposed. In cases where there has been much loss of bone, the use of the ferrule does not seem applicable. In such cases the steel splint with steel screws had been in his hands the only method of holding together the fragments. In compound comminuted fracture the fragments must be placed in position with the finger and held in place by the plaster-of-paris bandage. It did not seem to him that a case had been made out, except that in certain instances the method described is a good adjuvant, but that it is so in many cases he should be inclined to doubt.

Dr. M. H. Richardson, of Boston, said that in most cases of ununited fracture treated by the application of silver wire recovery follows satisfactorily. He thought that the same is true from the use of ivory pegs. Occasionally, as Dr. Senn advised, the application of the ferrule is of service and is a rational method. He reported a case of transverse fracture of the humerus operated on several times by silver-wire sutures, but without securing union. In such cases where it is desirable to keep the bones from slipping transversely the method of Dr. Senn will answer a useful purpose. In ununited fracture with extensive loss of substance the periosteum and medullary cavity do not come in contact, and I do not see how this is provided for by the method described.

Dr. J. Collins Warren, of Boston, had also operated on the case referred to by Dr. Richardson, but the lack of union was due more to the condition of nutrition than to failure of mechanical appliances. The patient is five feet eight inches in height, and weighs three hundred pounds. At the suggestion of Dr. J. J. Putnam the patient had recently been put on the use of thyroid juice. During three weeks' treatment the patient had lost ten pounds, but the method had not been continued sufficiently long to determine what the ultimate result will be.

Dr. Jos. Ransohoff, of Cincinnati, asked if Dr. Senn intended the use of the method he had described to do away with the use of external appliances?

Dr. N. Senn, of Chicago, said that his remarks had been misunderstood. He did not protest against the use of external support nor did he charge this with the production of permanent damage. He had alluded to continuous extension for six or eight weeks as being productive of such results. There is no method of direct fixation, and probably never will be, that will render external mechanical support unnecessary. All that he wished to overcome was the tendency to lateral displacement, and to bring by such direct means similar anatomical structures into mutual contact and hold them there. The angular deformity and rotation can be overcome by the use of plaster-of paris bandage

Hypertrophies and Degenerations of Cicatrices and Cicatricial Tissues, by Dr. J. Collins Warren, of Boston. The evolutoin of cicatricial tissue was first traced. Lymphatics are not usually found and nerves are rarely seen in scars. Scars rarely disappear entirely. They usually remain as a fine white line, or if the scar has stretched, as a band. Scars grow in proportion to the rest of the body. This point is not sufficiently borne in mind when performing operations on children in exposed portions of the body.

The most striking peculiarity of scar-tissue is its tendency to contract. During the healing process this acts in a beneficial way. It is also the cause of the most marked deformities. This contraction of cicatricial tissue is not due to any specific contractile quality in the tissue itself, but to the absorption of new-formed tissue. Scars are not ordinarily painful, but may become the source of pain by adherence to structures which are sensitive.

Among the most common pathological conditions observed in scars is that hypertrophic condition known as keloid. There has, of late years, been a growing feeling that keloid tumors spring from cicatrices more frequently than has been supposed. True, keloid is found on the chest and is an extremely rare form of growth. It seldom disappears. False keloid may develop in almost any part of the body.

Cancer not infrequently forms in cicatrices, usually after the cicatrix has existed several years. Calcareous degeneration of a cicatrix has been reported. A common form of complication in the life history of scars is suppuration, which may be due to reinfection or to the awakening of spores which have long been dormant. A most common form of relapse is due to tuberculosis.

A description of the cicatrix which forms between the Tiersch grafts and the subjacent tissue was given.

Every effort should be made to limit the development of scar-tissue. Animal sutures should be used if they are to be buried. Very superficial sutures should be used freely. The checking of the superabundant growth of granulations has been strongly recommended, as the contractility of the cicatrix is largely dependent upon the amount of granulation-tissue which becomes organized. For projecting scars compression has been recommended. This will often relieve the redness as well as the elevation. Unna advises friction with sand in the treatment of depressed scars. Pigmentation of scar from gunpowder may be relieved by scrubbing with nail-brush under ether. In older cases the particles of powder may be removed by the punch devised by S. J. Mixter for this purpose.

The treatment of true keloid is discouraging on account of the persistence with which it returns. If excision is attempted, the incision should extend one or two centimetres beyond the limits of the disease and to the muscular aponeurosis. Compression is recommended by many writers for the treatment of false keloid. As keloid is a connective-tissue structure, it is possible that an inoculation with the virus of erysipelas might produce absorption ; whether such a powerful remedy would be justifiable is doubtful. Tiersch-grafting may be employed with advantage to broad and flat cicatricial keloids. A case was reported in which this method had been employed, and thus far (several months) there had been no return of the tumor.

Dr. George R. Fowler, of Brooklyn, described the pathological anatomy of cicatricial and spontaneous keloid. The fact that keloid more frequently follows wounds in which there has been much suppuration suggests a microbic origin. In regard to epithelioma developing in cicatrices, it was noted that it has a tendency to spread upon the surace and rarely passes into the depths of the tissues. In the treatment of this condition there should be early and radical extirpation.

Dr. L. McLane Tiffany, of Baltimore, said that in the Southern States keloid was exceedingly common, but he knew of it only as a cicatricial disease. He had never seen a case of so-called non-cicatricial keloid. In the negro the disease is prone to undergo retrogressive changes after the age of forty or forty-five years. The affection rarely occurs before the age of eight or ten years. In the white race it may be confidently expected that keloid will go away or not much progress after the age of twenty-five years. The case of a girl who at the age of seven years was severely burned on the face, breast and arm, was reported. She was seen by the speaker eighteen months after the accident. At this time the scar was bright scarlet and one-half inch in thickness, resembling a heavy plate of cartilage; the advice was to let it alone. Twelve years later there was a white perfectly mobile scar. The speaker was inclined to think that operative measures in young persons, either white or colored, are unwise.

Dr. M. H. Richardson, of Boston, remarked that in cases of abdominal incisions it was important to bring the parts together so as to secure union by first intention. In open wounds that heal by granulation, there is a great tendency to hernia.

Dr. J. Collins Warren, in closing the discussion, said that the point which had impressed him was the absence of contractility in the scar-tissue which formerly was believed to exist. It is absorption that produces the pulling. The scar-tissue itself yields before pressure. Therefore the importance of accurate coaptation, not only to make the scar small, but to have no scar at all, and have regeneration instead of repair.

The Present Position of the Surgery of the Prostate was the first paper by Dr. J. William White, of Philadelphia. In regard to the nature of the prostatic enlargement, it was held that the prostate gland was a part of the sexual apparatus and not chiefly an accessory organ of micturition, and that the growth or growths which make up the enlargement are analogous to the fibro-myomata so frequently found in the uterus.

The changes in the bladder are due to the mechanical obstruction, the circulatory disturbance produced by pressure on the prostatic veins and to septic infection.

The symptoms of prostatic enlargement were discussed at length. In regard to treatment, purely expectant treatment is proper only where the enlargement has produced no symptoms and catheterization is easy and shows no residual urine. Ergot is the only drug that offers any prospect of usefulness, but it is far from demonstrated that it has any distinct effect. Palliative treatment, consisting in the systematic use of steel sounds for dilatation and the employment of the catheter, is of great value in a large number of cases.

The following operative measures were discussed: 1. Overstretching of the prostatic urethra. This is not likely to be followed by good results in cases where the median lobe and the vesical neck are chiefly involved. In lateral hypertrophy, where the urethra is simply narrowed, it may be of use. 2. Perineal prostatotomy should be regarded as that of choice in cases in which, with marked diminution of the expulsive force and with cystitis, there are evidences of wide spread degenerative disease or of distinct renal disease, toxæmia, and general feebleness. 3. Perineal prostatectomy, where the growth can be reached by the finger and is of small size or pedunculated; perineal prostatotomy can always be converted into a prostatectomy. 4. Suprapubic prostatectomy is the operation to be preferred in those cases in which, palliative treatment having failed, there are unmistakable indications that the local conditions are growing worse, the general health remaining unaffected.

In conclusion, the speaker said that some time ago the thought occurred to him that possibly, if the analogy between uterine fibromyomata and prostatic growth was a real one, castration might have the same effect upon the latter that oöphorectomy does upon the former. At that time he had not read of the alleged prostatic hypertrophy in eunuchs, geldings, etc. He instituted a series of experiments on dogs to determine the effect of castration on the size of the prostate. It was found that the average weight of the prostate in dogs was 35.3 grammes. The dogs were killed at varying intervals after the operation, the lowest period being seventy-two days, and in all there was a marked diminution in the weight of the prostate, the gland varying in weight from 2.5 grammes to 5.5 grammes, according to the weight of the animal and the period at which it was killed.

The author did not wish to be understood as advocating the measures which these studies would indicate. He simply presented the subject as a line of thought which had occupied his mind at odd times in order to have the criticism of the Association. As regards the employment of castration as a therapeutic measure in prostatic hypertrophy, the final answer must be left with the patient. If the time comes when we can promise equivalent results to those obtained by oöphorectomy in uterine fibroids, there will probably be no lack of cases willing to submit to the operation.

The Importance to the Surgeon of the Bacillus Coli Communis, by Dr. Roswell Park, of Buffalo.—The literature relating to the colon bacillus was thoroughly reviewed and evidence presented showing that this organism, which is constantly present in the intestinal canal, is not always a harmless inhabitant, but becomes at times an active invader, and does not confine itself to the intestinal mucosa, where it may set up most active desquamative lesions, but may pass this barrier and penetrate into the general circulation, and exercise pernicious activity in numerous other organs and toxic effects upon the system at large.

Herniary cholera, so called, is due to intoxication from the products furnished by the organism in a virulent condition. From the intestinal canal the colon bacillus may ascend along the biliary passages, determining lesions in the gall-bladder or liver. It is known to be one of the frequent factors in peritonitis of intestinal origin. In the kidneys as well as in the bladder the colon bacillus may exert pathogenic and pyogenic properties. The organism may be introduced from without, as upon a catheter, or may be transferred from its normal habitat by some traumatism of the natural channels. The endocardium, the meninges, the pleura, articular serous membranes, and the lungs are at times not exempt from the manifestation of its activity. It is probable that there is a form of post-operative septicæmia due in no direct way to the operator or operation, but is in fact what it has often been called an entero-sepsis, and due to the migration from the intestinal canal of the colon bacillus. Constant attention to the intestinal canal should therefore be the watchword of the surgeon, both before and after operation.

The author reported six cases from his own practice in which the colon bacillus was found, and in some instances it was the only organism present. The cases were as follows: 1, Cancer of intestine with abscess; 2, recurrent peri-appendical abscess; 3, acute abscess of the liver; 4, gangrenous appendicitis: 5, acute appendicitis, with perforation and obstruction of the bowels; 6, cholecystitis suppurativa.

When Shall We Remove the Vermiform Appendix? by James M. Barton, A. M.—Surgeons still differ on this subject; generally, I think, they are removing the appendix less frequently than they did, though some still remove it in nearly all cases, and one, whose article has recently been widely copied, considers all operations insufficient in which the appendix is not removed.

As I have been much less fortunate in those cases where I have removed the appendix than when I have permitted it to remain, I do so less and less frequently, so that now, in those cases where there is a circumscribed abscess, with no general peritonitis and no symptoms of intestinal obstruction, I do not search for nor remove the appendix.

During the last year I kept a record of the cases that came under my observation, and find that in nine cases of abscess of the vermiform appendix, which were operated upon and where the appendix was not removed, all recovered.

The object of removing the appendix, as I understand it, is to get rid of an inflamed, ulcerated mass, filled with pus-producing micro-organisms, the source of local suppuration and of possible general septic peritonitis. Its base is ligated to prevent fecal matters getting into the wound,and to avoid the possibility of a stercoraceous fistule remaining after recovery.

In the class of cases that I speak of, where the appendix has already ruptured and a localized abscess has occurred (and this is the condition found in most of the cases on which we operate), portions of the appendix have already become necrosed, the sloughs have separated and will be discharged with the pus. The leucocytes have destroyed the germs in the remains of the appendix, which lies buried in the inflammatory deposits surrounding the abscess.

There is but little danger of fecal matters making their exit through the appendix, as the opening of the appendix into the bowel has long been firmly closed, closed as firmly as a ligature would close it. If it were not so, the pus would never have broken through the walls of the appendix, or having broken through the resulting abscess, would not have increased in size, but would have emptied itself through the appendix into the bowel. In none of the nine cases quoted has any fecal fistule remained.

As further evidence of the strength of the obstruction at the opening of the appendix into the bowel, I may mention two cases that recently came under my observation, where fecal fistula followed natural cures. In both cases, the natural opening at the appendix was found firmly closed and the fistulous openings, when followed, were found to enter the bowel some inches away from the appendix, the pus having broken through the healthy portion of the colon in preference, showing that the inflammatory obstruction was stronger than the healthy intestine.

By not searching for the appendix, the time of the operation is much lessened, the shock is less, and the bleeding less, the granulation tissue bleeds quite freely when torn by the finger searching for the appendix. The drainage tubes and gauze keep their place better when the walls of the abscess cavity are unbroken. When they are broken it is difficult to keep the drains in contact with the ligated stump, and I regard the loss of a patient, on the fifth day, on whom I recently operated, as due to this cause.

The two most fatal complications after operation are septic peritonitis and intestinal obstruction. There is, of course, much less danger of general septic peritonitis if the adhesions be not broken down, as the pus can be much more readily kept away from the general peritoneal cavity.

Intestinal obstruction, in appendicitis, is an accidental complication caused by the manner in which the intestines surrounding the abscess are glued together, and bears no relation to the size of the abscess, and but little to the extent of the inflammatory deposits surrounding it.

In operating upon a case in which there are evidences of obstruction, if the obstructing portion of the bowel could be identified, it should be liberated. If it cannot be identified, then, after the abscess is emptied and its cavity disinfected, all adhesions should be separated with the hope that when they are reunited, as reunite they must, they would do so in such a manner that the calibre of the intestine should be unobstructed. Under these circumstances the appendix should be removed.

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PHARMACY AND THERAPEUTICS.

HYDROGEN DIOXID AND OZONIC ETHER.

By Solomon Solis-Cohen, M.D., Professor of Clinical Medicine and Applied Therapeutics in the Philadelphia Polyclinic; one of the Physicians to the Philadelphia Hospital, etc.

The use of aqueous and ethereal solutions of hydrogen dioxid was introduced into medical practice by B. W. Richardson in 1858. My own experience with these agents dates from 1882. During the last five years they have become generally known as to some limited portions of the great field of usefulness explored, surveyed and delimited by Dr. Richardson; but many of their uses are as yet little availed of. It is of some of these little-known uses that this note will speak.

The general employment of solutions of hydrogen dioxid is almost exclusively as an external application to destroy pus and germs. It has a much wider range of applicability as an internal remedy. Solutions containing the drug are best made with glycerine and should be given in water—about three ounces or half a tumblerful, with the dose.

In cases of *pulmonary tuberculosis*, the aqueous solution of hydrogen dioxid, ten volume strength, may be given in doses of from one to four drams, three or four times a day, for the purpose of introducing oxygen into the blood. There is no doubt that oxygen is in this way absorbed from the stomach and combines with the hemoglobin of the red corpuscles as readily as if taken in by the lungs in ordinary respiration. The remedy is counter-indicated when there is persistent high fever, but not in cases of hectic fever, during the remission. Its greatest utility is in the early stages, when pulmonary infiltration can first be demonstrated, or in those cases in which physical signs are ill-defined; but the rational symptoms indicate what we call, for want of a better term, "incipient phthisis." When anemia is a feature of the case, hydrogen dioxid may be usefully combined with a ferruginous preparation, Richardson preferring the "syrup of the superphosphate of iron."

In some cases attended with constant irritative and unproductive cough, the ethereal solution called by Richardson "ozonic ether" (which contains thirty volumes of hydrogen dioxid) is exceedingly useful as an anodyne and antispasmodic. One dram doses, in water, may be given; and sometimes it will be found advantageous to make a mixture of equal parts of Hoffman's anodyne and ozonic ether, giving it in doses of one or two drams. Such a prescription likewise assists the digestion and assimilation of fatty foods, especially of cod-liver oil.

Another useful expedient in cases of pulmonary tuberculosis in which it is considered advisable to give medicants to check cough, is to dissolve the proper dose of codeine sulphate in a solution of hydrogen dioxid. The alkaloids readily dissolve in the aqueous solution and there is perfect compatibility. A little alcohol sometimes aids solution, and as a rule, glycerine should be added to make the dose "smoother." It is best to make mixtures containing not more than twelve doses, to avoid the change that might occur in some instances from long standing. In a three-ounce mixture, of which the dose is two drams, about six drams of glycerine is a good proportion.

In whooping cough, hydrogen dioxid invariably shortens the course of the disease and modifies the symptoms favorably; in some instances almost marvellously. The dose for a child of three years is from half a dram to two drams of the ten-volume solution, every two hours. In severe cases, ozonic ether may be added or substituted, in such doses as the ether permits, for hydrogen dioxid is not likely to do harm in any dose. I have usually given fifteen minims of the ethereal in one dram of the aqueous solution. Sometimes a minute dose of codeine may be advantageously added; often a drop or two of eucalyptol will be useful when there is concomitant bronchitis. Latterly, I have in some cases alternated ozonic ether with bromoform.

Inhalations of "ethereal oxygen" which are useful not only in pertussis, but also in many other conditions, may be given by placing in a Wolff bottle, an ounce or two of the aqueous solution of hydrogen dioxid with half an ounce or less of ozonic ether, and allowing a solution of potassium permanganate in water (eight grains to the ounce) to drop in from a stoppered funnel placed in the stopper of one neck of the bottle, while the gas evolved is inhaled from a tube passing through the stopper in the other neck. A wide-mouthed bottle, with two tubes passing through the cork or rubber stopper, will likewise answer. When a stoppered funnel cannot be obtained, the solution of potassium permanganate is added to the solution of hydrogen dioxid in the bottle, and one of the necks or tubes being immediately stoppered, the gas can be inhaled from the other. This requires a bottle large enough to contain the greater volume of oxygen evolved at once. Eucalyptol, terebene, menthol, and other terebinthinate, aromatic, or balsamic agent may be added, and will pleasantly flavor the vapor, as w ellas add in some cases to its therapeutic efficacy. The ozonic ether may be omitted when the vapor of ether is not desired, as it is not essential to the production of oxygen in this way.

In anemia and chlorosis, I know of nothing that will so soon restore the corpuscles and coloring matter of the blood to a normal standard as the combination of hydrogen dioxid with iron Richardson, as already stated, uses a mixture of solution of hydrogen dioxid, glycerine, and syrup of the superphosphate of iron. I have used this, and also a mixture of tincture of ferric chlorid (f ℥ iij), dilute phosphoric acid (f ℥ v), glycerine (f ʒ ij), and solution of hydrogen dioxid, ten-volume (q.s. ad f ℥ iv), of which the dose is from one to four drams (usually two drams), in water, three or four times a day. The use of hydrogen dioxid, in conjunction with arsenic, is now being tested in a case of pernicious anemia, but it is too early to speak of results. I would strongly urge the practice on those who have the opportunity to carry it out. The doses should be large —as much as a tablespoonful of the ten-volume solution.

In the debility following influenza, of which some extreme cases have come under observation, I have found the following combination of great use.

℞.	Strychnine sulphate	½ grain.
	Diluted phosphoric acid	4 fl. dr.
	Glycerine	6 fl. dr.
	Solution hydrogen dioxide (ten volume) to make	3 fl. oz.—Mix.

Dose : Dessertspoonful in one-half tumblerful of water, three times a day, before meals.

The same or a similar mixture has been beneficial in neurasthenia and other chronic conditions of depression or exhaustion, and after recovery from debilitating diseases, to promote convalescence. It may also be used with advantage in pneumonia and other fevers when a cardiac tonic is indicated.

I have elsewhere called attention to the occasional effects of large doses of hydrogen dioxid in slowing and strengthening the pulse, similarly to digitalis ; and this action is of advantage in pneumonia, as is likewise the introduction of oxygen into the blood by way of the alimentary canal, so that the combination of hydrogen dioxid with strychnine is especially applicable in that affection.

In gastro-intestinal affections, attended with flatulence and eructation, I have often found hydrogen dioxid useful as an antiseptic, and also as a stimulant to the regeneration of a healthier epithelium—that is, if we may judge of histologic processes by clinical results. It is best given about five minutes before meal-times, and should be conjoined with lavage, or with the drinking of hot water from half an hour to an hour before meals.

In diabetes, hydrogen dioxid is useful, and one of the best methods of giving codeine in that affection is according to the method of Richardson, in which each dose consists of one-sixth of a grain (or more) of codeine sulphate, about twenty minims each of alcohol and glycerine, and enough hydrogen dioxid solution to make two fluidrams.

In conditions of *collapse* and *narcosis* hpodermatic injections of ozonic ether often serve a useful purpose in averting temporary dangers, in prolonging life, and in promoting recovery.

In *phosphorus-poisoning*, hydrogen dioxid should be useful as an oxidizing agent. Its administration could be followed by that of some organic salt of sodium or other alkali.—*Medical Progress.*

FORMALIN: AN IDEAL HARMLESS GERMICIDE.

The fundamental and classical work of Koch and his co-workers and the labors of many others have thrown light upon the true aims of disinfection, and established the best methods of insuring successful results. These aims are the absolutely certain destruction of all pathogenic germs, in the shortest possible time, with the least expense, with a minimum of injury to the articles to be disinfected, and without detriment to the health of the persons using the disinfectants.

The methods so far devised for application for solid objects comprise: (1) mechanical cleaning, (2) currents of steam, and (3) the use of chemical disinfectants. Passing by the first as an important but only partial and tedious *modus proceni*, the second may be characterized as certain if carried on for a long enough time. Unfortunately a great number of things are too large for such treatment, others are spoiled by it, and, further, costly apparatus is necessary.

As regards chemical disinfectants, there has been a conspicuous lack of substances which fulfil the requirements mentioned in the first paragraph. Some disinfectants are not sufficiently powerful in action, others have a disagreeable odor which they communicate to the articles on which they are used, and others attack most objects more or less vigorously. Among the number of antiseptic substances known at present there are only a few which are capable of destroying all germs of organic life within 24 hours. After eliminating osmic acid, only sublimate and, under certain conditions, chlorine and bromine are left. The two latter, however, are practically of little value, and against the application of sublimate its enormous poisonousness militates as well as the fact that it is inactive with albuminoid substances.

In view of this manifest deficiency a research was directed to the discovery of a compound which should have a germicidal action similar to that of sublimate without its toxicity, and which should be suitable for use not only in the moist condition (*i.e.*, in solution), but also in a dry form (*e.g.*, as gas). Now, reference was made to the anti-bacterial action of formic aldehyde by Löw in 1886, while further work had been done upon the compound by Aronson and by Berlioz and Frillat. More intimate examination of the properties of this aldehyde revealed astonishing results more than confirmatory of those of the authors named above.

Formaldehyde ($HCOH$) as known is a gas under normal conditions of temperature and pressure; it is readily soluble in water, and such a solution of 40 per cent. strength is put forward under the name of "Formalin." This liquid mixes in all proportions with water, and any required dilution can be readily prepared; thus, for instance, by mixing 1 part of Formalin with 40 parts of water, 41 parts of a 1 per cent. solution are at once obtained.

Even at ordinary temperatures, Formalin gives off gaseous formic aldehyde, and the evolution of gas is of course accelerated by application of heat. Exhaustive and numerous experiments on the bactericidal power of Formalin were carried out by Dr. J. Stahl. Berlioz and Frillat, already mentioned, had found that anthrax bacilli were killed by a dilution of 1 : 50,000, while Aronson stated that solutions of 1 : 20,000 prevented the development of typhus and anthrax bacilli as well as of *Staphylococcus pyogenes aureus.* Stahl's observations proved, that after one hour's exposure to 1 per mille, or a quarter of an hour's exposure to 1⅓ per mille solution of Formalin, the most resistant forms of microorganism were destroyed. At the least, therefore, Formalin is equal in germicidal power to sublimate, and under certain conditions would be superior where albuminoid solutions are concerned.

As already intimated, great importance is attached to the applicability of the ideal antiseptic in gaseous or vaporous form, as only in this way can we conveniently disinfect large rooms and more delicate articles in closed apparatus. The experiments carried out by Dr. Stahl with Formalin vapor were made in a large glass bell in which was set a small table carrying potatoes freshly inoculated with pure cultures of typhus, anthrax, cholera, etc. The glass bell stood upon an iron plate which exactly closed it. The experiments showed that 2.5 volume per cent. of Formalin in the air destroyed all micro-organisms in a quarter of an hour. Undoubtedly even better results would have been obtained could a constant stream of Formalin vapor have been conducted over the cultures.

The interesting observation was made, early in the examination of the properties of Formalin, that when allowed to evaporate in the presence of wool, gauze bandages, or other dressing material, the vapors condensed upon the fabrics in solid form (paraformalin), and so disinfected them. On evaporating again from the solid form, paraformalin was dissociated into Formalin vapor and exerted an antiseptic inflence upon its surroundings. Hence dressing materials treated with Formalin are not only perfectly sterile, but can be immediately used as antiseptic dressing.

Dr. Stahl packed some silk threads carrying anthrax spores in a large ball of unsterilized dressing wool, and exposed the whole to the vapors of Formalin spontaneously evolved from kaolin-blocks which had been soaked in the germicide. After an exposure lasting 48 hours the spores were destroyed. The kaolin-blocks soaked in Formalin are brought out under the name "Formalith," and designed for placing in closed vessels with dressing materials, which by this means can be kept perfectly aseptic.

Another series of experiments was designed with the view of determining the microbicide power of the preparation when sprayed upon paper and textile fabrics, which, having been carefully sterilized were inoculated with anthrax and garden-soil spores. After drying, the surfaces were sprayed with solutions of Formalin of various strength. After definite periods pieces of the material were cut off with sterile instruments, washed with alcohol to remove the Formalin and placed upon agar-agar.

The results showed that spraying with a 0.5 per cent. solution was sufficient to kill the spores in a quarter of an hour. Solutions of half this strength effected the same and in one hour.

Translating these results into practical figures, and basing the calculations on the observation that 8 ccm. of the ½ per cent. solution was sufficient for 1 square meter surface, Dr. Stahl reckoned that for the disinfection of the walls, ceiling and floor of a room 23 feet square and 13 feet high not more than 3 pints of the solution, or about 6 drms. of the 40 per cent. Formalin, would be required. As these figures assume that all the solution used falls on the walls, etc., somewhat more would, of course, be necessary in actual practice. For the disinfection of a room in the Lazarus Hospital of about the size specified above about 4½ pints of a 2 per cent. dilute solution was used from two small spray apparatus, the time used in the process being half an hour. The strength of the solution employed was unnecessarily high, but nevertheless no marked discomfort was experienced by the persons working the sprays. .

Other materials, such as silk, satin, plush, wool, linen, etc., were similarly treated, a 2 per cent. solution being employed and for a longer period, as the fabrics were of thicker texture than paper. All the specimens were disinfected by half-an-hour's spraying of the 2 per cent. Formalin solution. It was found that the excess of solution could be readily got rid of by "airing" the material, and scarcely any trace of odor remained. Further the colors of the papers and materials, treated with the disinfectant, were entirely unaffected.

Turning to the consideration of the physiological properties of Formalin, it stands recorded by Aronson, Berlioz, and Frillat, that formic aldehyde is relatively non-poisonous. The manufacturers of Formalin also noted that men, working day after day in an atmosphere loaded with the vapors, felt perfectly well, and when they had accustomed themselves to the peculiar penetrating odor of the aldehyde, did not experience any discomfort in their work. It has been already noted that a room in the Lazarus Hospital was disinfected by a 2 per cent. solution without any marked unpleasantness to the operators.

When brought into contact with the animal skin, undiluted Formalin exerts a kind of tanning effect, making it impermeable, and finally brings about its necrosis. This action depends upon the property of Formalin of very readily penetrating living and dead animal tissue and forming with it a sort of combination. The tissue is destroyed without suppuration or formation of a sore.

Some of the experiments establishing this property may be briefly stated. By repeatedly painting a limited area in the skin of a rabbit with Formalin, its necrosis was brought about, so that after a few days it was cast off with the hair growing upon it. The point of a rabbit's ear was painted for four days consecutively, three times a day, with 40 per cent. Formalin. After 10 days the part fell off spontaneously without the slightest bleeding, and smooth as though cut with a knife.

Quite similar was the effect upon the human epidermis. A small area on the forearm was left in contact with paraformalin for two days; the skin became hard and insensitive, and after a few days a thick horny crust gradually separated, leaving a deep scar.

The application of this action of Formalin to surgery is obvious; probably the preparation would be useful as an external application against lupus, cancer, or in very dilute solution (up to ½ per cent.) for the irrigation of cavities. Similarly Formalin might prove of value for the removal of the diseased growths on the epidermis of the mucous membrane. The *modus procendi* might be either the arrest of development of such growths by painting the roots or pedicles with Formalin or the gradual destruction of the excrescence itself by the repeated application of the prepration.

Summing up the results of all these experiments, the properties of Formalin may be expressed as follows:

1. It has an extraordinarily active microbicide power similar to that of sublimate.

2. It is comparatively non-poisonous.

3. It attacks only the substance of the contagious material, leaving intact the articles treated, whether of organic or inorganic natures.

4. It is very readily employed under all circumstances either as liquid or in gaseous form.

It is a marked advantage of the vapor of Formalin that its specific gravity closely approximates to that of the air, so that there is no difficulty in keeping the atmosphere of an enclosed space uniformly impregnated with Formalin vapor.

Dr. Stahl recapitulates the methods of using Formalin by spray and vaporization, pointing out that for the superficial disinfection of furniture, articles of clothing, etc., spraying with a ½ per cent. solution should be resorted to and carried out with as much energy as possible. In gaseous form the preparation promises to do good service in the dry disinfection of more delicate articles in closed vessels as well as of furs, dressing, material and the like.

Some of the Therapeutic Work of the Past Year.—Arsenite of copper in anæmia, the use of atropine as a hæmostatic, and the value of camphorated oil in cases of collapse have received attention. The administration of oxygen in various acute respiratory affections led to numerous communications; it was employed together with strychnine in pneumonia, alone in a severe case of broncho-pneumonia following influenza, and it was also recommended in asthma and in convalescence—massage, electricity and oxygen being regarded as substitutes for change, exercise, and sea-air. Rectal antiseptic injections in epidemic influenza, and in advanced phthisis with large cavities, have once more received commendation. Phthisis has also been treated with creosote, guaiacol, camphoric acid, and cantharidinates, but increased experience with the last named has given rise to some anxiety, owing to the frequency of consecutive albuminuria. In the treatment of vomiting hydrochloric acid and strontium bromide have been recommended; chlorobrom has been used for sea-sickness and solanine for painful disorders of the stomach; orexin hydrochlorate has somewhat gained in favor as a stomachic and aid to digestion; salicylate of bismuth has been used in infantile diarrhœa, and lactic acid in many other forms of diarrhœa, having given good results even in phthisis. Much has been written of the value of glycerine in the treatment of hepatic colic, for which, when due to gall-stones, large doses of olive-oil have also been recommended.

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MISCELLANEOUS.

Medical Aspects of the World's Fair.—Until within the past week there has been little at the Fair that has attracted attention from a medical point of view. Even at this time many of the exhibits are incomplete. To the medical man contemplating a visit to the Fair, there are other things of interest and importance, some of which must demand his attention before he visits Jackson Park. How and where shall he be lodged and fed? If a prolonged stay is contemplated, or if economy is an object, it will be well to avoid all hotels and boarding-houses in the immediate vicinity of the Fair, at least in a general way and for the present. Here it is that furnishings will be scant, service poor, and rates unexpectedly high. The principle upon which charges seem to be based is the same as that upon which the late Dr. Francis, of Newport, R. I., is said to have advised for the charges for medical attendance: "Temper the wind to the shorn lamb; but be sure to shear the lamb." In the larger hotels in town the charges have been much increased for rooms, but the restaurant charges are practically unchanged; while in the smaller hotels, especially those much frequented by commercial travelers, the charges are the standard ones, the proprietors being content with stopping rate-cutting. In such hotels a comfortable single room may be had for the night for a dollar. Restaurants in the town, not connected with hotels, have not increased their charges. Boarding-houses have, as a rule, except in the extreme northern and western portions of the city, increased their rates; but it will in most instances be found that they will "consider any reasonable offer." It would seem to me to be wiser to stop for the first twenty-four hours at a hotel and select for yourself permanent quarters than to trust to the numerous agencies that have flooded the country with circulars. There are two agencies for the providing of rooms that the doctor may safely trust to—that of the *Medical Bulletin*, in the Masonic Temple, under the management of the genial Dr. Kaufmann, and that of Truax, Greene & Co., the surgical instrument-makers, at 75 Wabash Avenue. At either one may register, receive his mail, and obtain a list of houses at reasonable rates. For this service there is no charge ; but I suppose that a patron would feel bound to subscribe for the *Bulletin* in the one instance, and make a few purchases in the other. In other words, these are business enterprises of business men, and in no sense under the control of the Charity Organization Society.

For one's personal health two things should be avoided—living in a house with a cellar, and drinking water that is not known to be pure. Under certain conditions of wind and rain the cellars in certain portions of the city become flooded, sometimes from a return flow of the sewers. In these houses diphtheria and typhoid may at times be found. The lake water when taken from the four-mile crib is probably always pure ; but there is no assurance that every glass comes from there. It is strongly suspected that water has been taken from the two-mile crib, and even from the one-mile crib at times, without due notice to the people. The water at the two-mile crib is pure when there have not been recent heavy rains and when the wind is not from the west. The water from the one-mile crib has not been pure for years. Further than this, an undiscovered or unattended leak in the tunnel may contaminate the water supply. There is reason to suspect that such a condition of affairs existed when typhoid was so prevalent here. Most of the hotels and restaurants serve either pure spring water, or water that has been passed through a Pasteur filter, and at any place one may be assured of the safety of the water by boiling it. A word of warning, however, is proper : Do not always trust to a label. At the Fair certain boxes are placed, provided with cups, and labeled "Sterilized Water." These boxes did at one time contain sterilized water, but recently the sterilizing plant has been unable to supply the demand, yet the boxes do not run dry. For a penny in the slot, however, one may obtain a glass of cooled spring water from Wisconsin.

The medical societies and some of the colleges are making special efforts to welcome the visiting medical gentlemen. There are committees of reception who may be expected to look after their personal friends, and smile and shake hands with the rest of the medical visitors. One of the medical schools has invited a large number of guests to deliver addresses, and has instructed its committee to the effect that the school will not pay the board of these guests, but that the individual members of the committee must, when required, become surety therefor. It has been a question in my mind whether this is more a reflection upon the financial standing of these foreign professors, or upon the hospitality of the members of the committee.

During the past week three medical associations have held meetings at the World's Fair: The Homœopathic Congress, the American Medico-Climatological Association, and the Eclectic Medical Congress. At the Post-Graduate Medical School Professors Henry D. Noyes and Herman Knapp, of New York, have addressed large and appreciative audiences. On Friday Dr. Reynolds, Commissioner of Health, arranged for an excursion to the four-mile crib, Mr. Ernest Hart, editor of the *British Medical Journal*, being the guest of honor. The excursion, however, was deferred, as the venerable Englishman feared the results of one of Chicago's rainy days. On Saturday evening Dr. John E. Owens, Medical Director of the World's Fair, gave a small dinner in honor of Mr. Hart.—*Medical Record.*

THE KEELEY CURE EXPOSED.—In the *Medical News* of May 6, Dr. B. D. Evans, of Morris Plains, gives a good many interesting facts regarding the so-called Keeley cure. He quotes the following as being the medicines used:

1.—THE TONIC, OR "DOPE."

℞	Aurii et sodii chlorid	gr. xij
	Strych. nitr	gr. j
	Atrop. sulph	gr. $\frac{1}{4}$
	Ammon. muriat	gr. v
	Aloin	gr. j
	Hydrastinin	gr. ij
	Glycerin	℥ j
	Fl. ext. cinchonæ comp	℥ iij
	Fl. ext. coca erythrox	℥ j
	Aq. dest	℥ j

[Dose: One teaspoonful.]

2.—THE "SHOT," OR INJECTION.

℞	Strych. nitr	gr. $9\frac{1}{10}$
	Aquæ dest	℥ iv
	Potass. perman	q. s. to color.

[Begin with 5 drops.]

In addition to these two, an injection of a solution of chloride of gold and sodium is used to impress the patient, his attention being called to its rich golden color. Then comes the trick, the hypodermatic injection of apomorphine, which is given with or as a substitute for the "shot" while the patient is allowed to drink whiskey.

He collects reports of 291 cases, among which were 158 relapses and 88 cases of insanity after treatment.

This is not a brilliant record, and is very far from evidencing a sure cure. The charlatanry and commercialism connected with the business are well demonstrated by Dr. Evans. There is no use in denying, however, that the method, apart from this, is a good application of moral and medicinal therapeutics to the various conditions called inebriety. The atropia used is not a very poisonous or harmful drug, neither is strychnia in proper dosage.

The drugs and other agencies employed are none of them new, but they are ingeniously combined. As for the insanity following the cure, it is well known that insanity follows after alcoholism in a great many cases, and it is illogical to attribute it to strychnia and atropia rather than to the alcohol. It is the secrecy, the inhumanity, the indiscriminate dosing of all kinds of people simply for purposes of gain.

SUTURE OF ULNER NERVE FOUR MONTHS AFTER SECTION; RAPID RETURN OF SENSATION.—On March 7, M. Berger presented to the Academy of Medicine a little girl whose ulner nerve, divided by the bursting of a bottle, had been reunited by suture four months after the injury. At the time of the accident the ulner artery had been tied, but the divided nerve had been left untouched. M. Berger found the divided ends of the nerve separated by an interval of one centimeter, each end being the seat of a neuroma. These growths, together with a slender fibrous cord uniting them, were removed and the ends brought together with silk sutures. On the day following the operation the anæsthesia of the little and half the ring finger had disappeared, and the trophic troubles in their turn did the same. The child's hand no longer presents the appearance of *la grippe cubitale*, and the local muscular paralysis is no longer apparent. Professor Tillaux explains the rapid return of nerve function by the almost instantaneous re-establishment of the current brought about by the accurate apposition of the nerve ends. Both MM. Tillaux and Nicaise have related cases where sensibility was restored five hours after paring and union of the cut ends of a nerve. In two cases, reported by MM. Polaillon and Segond, the same result was observed a quarter of an hour after the operation. M. Laborde expressed himself as not satisfied with M. Tillaux's theory, and he proposes to initiate a discussion on the subject at no distant date.

SPLENECTOMY FOR INJURY.—Riegner (*Berl. klin. Woch.*, February 20, 1893) reports the case of a boy, aged 14, who fell from a height, striking the abdomen, and leaving some abrasions on the left side. On the following day there was increasing pallor, abdominal distension and rapid pulse. The liver dullness extended from the fourth rib to a finger's breadth below the costal margin. There was also dullness in the epigastrium. The urine drawn off was healthy. The symptoms made the diagnosis of hemorrhage from a ruptured viscus, either liver or spleen, certain. As the boy's condition steadily became worse, the abdomen was opened in the middle line, the incision being afterward prolonged over the right hypochondrium. The liver was not ruptured. The intestines had to be turned out, and among the clots, etc., pieces of splenic tissue were discovered. The first incision had to be extended over the left hypochondrium, when the spleen was found completely divided in two. Both parts were removed. Saline solution had to be infused subcutaneously. The boy slowly recovered, but in a few days gangrene appeared in the toes and in parts of the left leg, which necessitated amputation through the thigh four weeks after the splenectomy. Three weeks after the first operation the lymphatic glands began to enlarge, first the inguinal, then the cervical, etc. The patient got up in the seventh week. Later there were slight hernial protrusions at the scar, giving rise, however, to no inconvenience. The author refers to wounds of the spleen, and also to so-called spontaneous rupture of an enlarged spleen. Rupture of the spleen does not give rise to peritonitis. Extensive tearing of the spleen is surely fatal, and death may occur in a few hours, or even minutes. Laparotomy with splenectomy must, when possible, be practiced. Rupture of any other organ, of course, makes the outlook worse. The gangrene here was apparently not directly traumatic in origin. The spleen is not absolutely necessary to life. Hypertrophy of the marrow of bone was present in this case. The thyroid body was slightly enlarged, but whether this existed before could not be said. The author believes that the glandular enlargement was compensatory. There was diminution of red cells and acute leucocytosis during the first few days. Various forms of leucocytes were found; they were mostly neutrophile and polynucleated cells. A few eosinophile cells werepresent. After a month lymphocytes predominated in numbers, but later they diminished. There were no nucleated red cells. The author thinks that the spleen plays a part in converting white into red cells. At first the hæmoglobin went down to 35, but subsequently it rose to 80 per cent. Seven months after the splenectomy the number of red cells was normal, whereas the white cells were still too numerous (1 in 180). The glands showed signs of diminishing

The regeneration, however, is not yet complete, as is shown by the glandular enlargement and leucocytosis.

Notes on the Carbolic Acid Treatment of Typhoid Fever.—From 1889 until 1892 I have treated 49 cases of typhoid fever, 39 by the ordinary method and ten by the carbolic acid pills recommended by Professor Charteris.

In each case the patient was isolated, the maintenance of the recumbent position was insisted on, and milk diet was ordered to be taken at stated intervals. Until my diagnosis of typhoid fever was certain I did not prescribe any medicine, but when I was satisfied the case was one of this fever I prescribed a carbolic acid pill—2½ grains—to be taken thrice daily, its effects being carefully watched, special attention being directed to the urine. When the temperature was reduced, which usually occurred within three days of their administration, two pills were given, one at night and one in the morning. When the morning and evening temperature became normal only one was administered for two days.

In four cases there was a relapse after the pills had been discontinued for several days, and when this occurred, one, two or three pills were given daily, as the temperature and other symptoms demanded. When the patient improved they were gradually discontinued.

After the temperature had been normal for a week the milk diet was supplemented by light food, as whitefish, beef tea, chicken soup, arrowroot and corn flour, and, as the patient's recovery progressed, solids were allowed.

The ordinary method of treatment consists mainly in strengthening the system by appropiate diet and by prescribing for urgent symptoms. The carbolic acid treatment strikes at the root of the fever by the destruction of the micro organisms which are the cause of the malady. In the cases so treated the fever was cut short, no grave symptoms, as hæmorrhage or perforation, ensued, and the process of recovery was quick and attended by no wasting.

My opinion is that the efficacy of the carbolic acid treatment cannot be questioned, and I am certain, if adopted early, it would prove, in an epidemic of typhoid fever, a preventive as effectual, or more so, than that of vaccination in small pox. H. Rodger Sloan, M.B., C.M.

In the *Contemporary Review*, Dr. Lloyd Tuckey has an article entitled, "The New Hypnotism," which purports to be a reply to Mr. Ernest Hart's article on the "Revival of Witchcraft," in last month's *Nineteenth Century*. Dr. Tuckey is entirely at one with Mr. Hart, " in his sweeping condemnation of the practices indulged in by Dr. Luys," but objects that the French physician cannot be accepted as the representative of hypnotic practice. Dr. Luys, however, as physician to La Charité, holds an eminent official position in Paris, and the semi-public demonstrations which he has been in the habit of giving, and the attention which these were beginning to excite in the public press, rendered it highly expedient that the utterly untrustworthy nature of the grounds upon which his conclusions are based should be exposed. Dr. Tuckey holds that the use of hypnotism should be limited to the practice of qualified and responsible medical practitioners. This is now generally accepted, and the only question which remains open is as to its therapeutic value in skilled hands. Dr. Tuckey states that it is of use in intractable neuralgia, as a method of soothing the last stage of incurable chronic disease, and as a means of curing vicious habits and inebriety. That is a very limited range, and even here only a very small percentage of cases are amenable. Dr. Tuckey would do well to submit to impartial medical observation and criticism the cases upon which he bases these claims.

A Cure for Wine, Woman and Song.—Dr. Frank Kraft, of Cleveland writes, in the *Medical Advance*, on wine, woman, and song, with special reference to their therapeusis. Dr. Kraft finds that excesses in wine, or rather in alcohol, breeds three kinds of drunkards, each of which is best set up by certain remedies. These are his three pharmaco-clinical types : "Nux vom. for the beer drunkard ; gelsemium for the 'champagne' drunkard ; and sulphuric acid for the 'rot-gut' whiskey drunkard." It appears from this that the hard drinker has only to make an intelligent diagnosis of himself and then fill his pockets with a bottle of sulphuric acid, nux, or sempervirens, as the case may be, in order to keep in good condition.

"Woman," Dr. Kraft thinks, "has caused man considerable trouble," and this cautious estimate of social history will not be generally disputed. We turn with some interest to find the drug which solaces man when he has had embittering experiences. Hyoscyamus we find is suited to relieve a disappointment in love so severe as to make the victim turbulent, talkative and irritable. Henbane quiets the noisy lover. Belladonna helps the moody, sleepless, and dangerous man. Let the ladies take notice and reject their suitors not with a promise of continued sisterly interest, but with vials of the proper antidote. Nux vomica is for the passionate, sensual fellow who loves not well but for amorous ends, while staphisagria cures the man who is simply humiliated and mortified at his refusal. If disappointment in love makes a man swear, give veratum," says Kraft ; "if it makes him lie, give anacardium, and if it makes him a blackguard, give chamomile. If he is intensely erotic, let him chew camphor.

For the ills that come from song Dr. Kraft does not say much. He is vindictive toward tenors who sing too much, and thinks they may be helped by stramonium. For the ill effects upon man of the song of others his list is far too short, and includes only natrum mur., followed by sulphur and belladonna.

The foregoing is contemporary medicine, though it sounds like a dream-book. As practitioners of medicine we must look upon man and disease from every aspect and Dr. Kraft furnishes us a very pleasing one.—*Record.*

BACILLI AS CAUSES OF DISEASE.—It is perhaps well that magazines and newspapers should provide popularized information on scientific and medical subjects, but looseness of statement and actual inaccuracy cannot be accepted as constituting simplification. A recent number of the *Westminster Review* contains an article which it would be inadvisable to take too seriously, but it contains a number of inaccurate statements which may seriously mislead those non-medical readers who take an intelligent interest in the most fascinating and important subject of the relations of bacteria to disease. Bacteria in this relation no doubt are on their trial, but let the trial be a fair one, and conducted by competent advocates. "In spite of the fact that Koch is reputed to have discovered the bacilli of cholera and of consumption, that Pasteur has discovered the bacillus of rabies, and that many other investigators have discovered the microbes of many other diseases, the answer must be we are not certain!" so says the author. We are not aware that Pasteur ever claimed that he had discovered the bacillus of rabies, and any arguments based on that assumption must fall to the ground. It is inconceivable, too, that any writer acquainted with the elements of bacteriology should make any statement "to the effect that the bacillus (*sic*) has been proved to be the cause of disease in one case only, namely, erysipelas." The appearance of micro-organisms in the tissues, the methods of making pure cultures, and of inoculating animals are all dealt with in the same loose and general fashion, so that we are not astonished later to find the following allowed to stand: "The position is a strong one, and it seems almost hypercritical (*sic*) to insist that there is still room for doubt." Equally startling is the suggestion that, after all, the cholera bacillus may be merely "a necessary aid to digestion." ! ! ! There is much more of the same kind, into which it is unnecessary to enter in detail. With cholera again knocking at the gates, there can be nothing more likely to undermine public confidence in the methods adopted (hitherto with success) by our public medical service to localize and stamp out this fell disease than an ill-digested and ill-considered article such as that which appears under the above heading. The only excuse that can be made for the writer is that he is not a medical man, and that his knowledge of bacteriology, such as it is, has been gained through books, so that he can scarcely be expected fully to understand the heinousness of his offense.—*Lancet.*

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MEDICAL NEWS AND NOTES.

A MEDICAL BOARD RESIGNS.—The Medical Board of the New York Infant Asylum have, with one or two exceptions, resigned. The action was taken on the ground that the board were denied the right granted to boards of other hospitals in the city, viz., that of nominating to the managers the physicians who are to be appointed on the Medical Board. We learn that on the first of January a gentleman who had faithfully performed his duties as visiting physician was dropped and a new man quite unknown to the board was appointed in his place Some respectful protestations were made, to which an insulting reply was given by one of the managers. After some fruitless attempts at an amicable adjustment the resignations were sent in.

We deprecate the practice of resigning, as a rule. The governors of our larger and more reputable institutions are generally reasonable men, and they desire to do justice to the physicians and accede to their reasonable requests. In this case, however, we do not see that any other course could be taken by the Medical Board; furthermore, it is difficult to see how any self-respecting physicians can take their place. For in order to do so, they must accept complete subservience to the Managing Board, who can turn them out at any time without cause, and who can appoint as their associates any persons, however despicable. Such a position is not and would not be tolerated by any board of visiting physicians, however great the attractions of the service. The work at the New York Infant Asylum is arduous and attended with little *éclat.*

An instructive comment on the attitude of some managing boards to the medical profession was shown in this connection. When the President of the Board learned of the resignations, he said to a reporter that "he did not care a picayune" about the resignations; as he could get others just as good to take their place. Among the gentlemen on the board who resigned are: Drs. George T. Harrison, H. Marion Sims, Egbert H. Grandin, L. Emmett Holt, C. C. Rice, C. L.

Dana, W. R. Townsend, G. Clarke Thomas, Oren D. Pomeroy, George T. Elliott, George B. Fowler, Seneca D. Powell, and H. C. Coe.

We shall watch with interest for the list of gentlemen who accept the positions thus vacated.—*Med. Record.*

Bicycling and its Physical Results.—Says the *Medical Press*: "Apart altogether, however, from a health point of view, nothing could exceed the inartistic attitude which is now assumed by 'wheelmen' trundling themselves about on safeties.' With arms outstretched and elbows ungainly projecting, with slouching shoulders and backs curved to the arc of a hoop, with heads thrown back, causing the chin to assume somewhat a 'prognathous' position, suggestive of the natural facial outline of the reputed simian ancestors of man—these are the several features of the riders which attract the attention of an observant spectator at the meet of a cycling club. To say that such a spectacle is a melancholy one is by no means to exaggerate the truth. In the best sense of the word, the sight is a melancholy one, to witness the sacrifice of so much of that gracefulness which naturally belongs to the 'human form divine' by the pursuit of a pastime which in all other respects has everything to commend it."

A good many physicians now recommend "cycling." They should do it with a caution; and the manufacturers would do well if they would invent a "health bicycle" which could only be propelled by a person who sits erect.

Memorizing Doses.—The following rules with their exceptions were formulated by Professor G. A. Wiggins: 1. The dose of all infusions is one to two ounces, except infusions of digitalis, which is two to four drachms. 2. All poisonous tinctures, five to twenty minims, except tincture of aconite, which is one to five minims. 3. All wines from one-half to one fluid drachm, except wine of opium, which is five to fifteen minims. 4. All poisonous solid extracts, one-half grain, except calabar bean, which is one-sixteenth to one-fourth grain. 5. All dilute acids, five to twenty minims, except dilute hydrocyanic acid, which is two to eight minims. 6. All aquæ from one to two ounces, except aqua lauro-cerasi and aqua ammoniæ, the dose of which is ten to thirty minims. 7. All medicated syrups, one drachm. 8. All mixtures, one-half to one fluid ounce. 9. All spirits, one-half to one fluid drachm. 10. All essential oils, one to five minims.—*Pharmaceutical Record.*

The International Medical Congress.—It is officially announced that the rumors are entirely unfounded that the International Medical Congress to be held at Rome in September is to be postponed on account of the engagement with cholera matters of distinguished part ticipants. The Fifteenth Section of the Congress will be devoted to a consideration of cholera and quarantine. Prof. Koch and Prof. Cunningham are expected to take part in the discussion. In addition to the North German Lloyd Steamship Co., the Hamburg-American Packet Co. and the Compagnie Générale Transatlantique, the Netherland Steam Navigation Co. offers reduced rates of transportation to visitors to the Congress. The Hamburg-American Packet Co. announces that the concession also applies to the families of members.—*Medical News.*

A Laboratory Course in Cholera Diagnosis.—The directors of the Carnegie Laboratory, 338 East 26th Street, New York, Alexander Smith and Frederic S. Dennis, announce to health boards, health officers, and properly accredited medical men, that in view of the possible advent of cholera in this country during the coming Summer, and the great importance of biological examinations in the diagnosis of the disease, they have arranged for short courses on this subject. It is designed that these courses shall have the same general scope and fulfill the same purpose as the cholera courses given at the Hygienic Institute in Berlin, by Prof. Robt. Koch, in 1886 and 1887. They will be under the direction of Dr. Edward K. Dunham, who has worked considerably on cholera in Germany and, recently, in this country.—*Dietitis and Hygienic Gazette.*

A Sojourn in Egypt as a Remedy for Sterility.—De Lesseps once stated that all the conquerors of Egypt, from the Hyksos down, had been compelled to loose their clutch on that country because they failed to reproduce their race while in it. This may apply to the French, whose reproductive powers appear to be failing, even in their native land; but it does not affect the English. Indeed, the truth seems to be quite the contrary; for so prolific has the Anglo-Saxon proved in Egypt that childless couples are now recommended to visit the Nile Valley. In one case, a bride of twenty years standing presented her lord with their first child while sojourning in Assouan, in the extreme south of Egypt.—*The Times and Register.*

Lessons in Physical Diagnosis, by Alfred R. Loomis, M. D., Professor of the Practice of Medicine and Pathology in the University of the City of New York. Tenth Edition. Revised and enlarged. New York: Wm. Wood & Co., 1893. This old friend in a new garb will be welcomed by the young practitioner as well as by his more mature colleague, as a counselor in the most difficult branch of medicine. When a man of the author's ripe experience consents to remodel a book written many years ago, we may expect a work of great value. The reader will not be disappointed. The lessons, as they are modestly termed, are lucid, brief, yet comprehensive resumés of salient diagnostic features. The mechanical execution leaves nothing to be desired.

Receptions by Drs. Knapp and Gill Wylie.—On Monday evening Dr. Herman Knapp gave a reception at his residence in West 40th St., in honor of Professor Zehender, of Munich, and Dr. W. Gill Wylie, his neighbor, tendered a similar courtesy to Professor T. Gaillard Thomas, of this city. Fully four hundred representative medical men from this city and vicinity responded to the invitations and passed from one house to the other between the hours of nine and eleven. The occasion partook somewhat of the nature of a medical house-warming, as both Drs. Knapp and Wylie have only recently moved into their new, spacious, and elegantly constructed mansions.

For Nervousness and Depression of Spirits.—The following is given by Dr. Emmet in general nervousness and depression of spirits:

℞	Strychniæ sulph	gr. j
	Quinæ sulph	ʒ ss
	Ferri pyrophosphat	ʒ ij
	Spiriti chloroformi	ʒ iij
	Glycerinæ	qs. ℥ iv

M. Sig.—One teaspoonful in a wine-glass of water four times a day.

Diseases Peculiar to Women.—Some time ago many physicians, and probably many more of the laity, received cards announcing that a certain Dr. Sara Chase would lecture at Chickering Hall on diseases peculiar to women. Recently this person was convicted of manslaughter and sentenced to imprisonment for nine years. She was found to have produced an abortion, and the patient died from its effects.

A Home for Consumptives.—Baron Nathaniel Rothschild has signified his intention of placing at the disposal of a Vienna society, which is concerning itself with the care of consumptives, his chateau and grounds at Semmering in the Styrian Alps. The house will afford accommodation for some five hundred patients, and the money value of the gift is stated to be about $2,500,000.

The Number of Morphinomaniacs in Paris is estimated by M. Dubut de Laforet to be one hundred thousand. According to this extraordinary statement every tenth adult is a victim of the morphine habit.

St. Luke's Hospital, New York, has been sold to a syndicate for two million five hundred thousand dollars.

EDITORIAL.

THE 44TH ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION was held in Milwuakee during the second week of June. The meeting which had promised to be of considerable interest owing to discussions regarding changes in the code and revision of the Constitution and Bye-laws, proved to be a very quiet one. This was owing to the fact that consideration of both these subjects was postponed until another year. The changes proposed by the Committee on Revision of Constitution were some of them very radical. The fundamental idea was the giving of greater importance to the Sections and reducing the number of the general Association meetings. As the times change, conditions change. The tendency is to specialism. Not only have a large number of special societies grown up, but many general societies during recent years have gradually been divided into Sections, in which the actual work of the societies is being done more and more. This change is therefore directly in the line of modern conditions. Another radical change proposed, is in the method of selecting members. Any member of a State Society recognized by the Association, is to be entitled to membership upon simple payment of the dues. No questions are, therefore, to be asked by the Association regarding his fitness, that being left entirely to the State Societies. The actual government of the Association is to be committed to the officers of the various sections instead of to the members arranged by States. As these changes were opposed by a small but vigorous minority, it is evident that they will not be made without a struggle.

The Committee on Revision of the Code, although it asked for time for further consideration, made several suggestions. The changes it proposes are very sweeping and it would seem possible. if the new code men are in the majority, that an entirely new instrument may be adopted before the matter is adjusted. The omission of all sections of the Code which detail the obligations of the patients and of the public to physicians could be very profitably omitted. The third proposition made by the Committee, in which the term "consultation" is re-defined, seems like abandoning the ground which the Association has so tenaciously held. It seems to us that it is as radical as the changes made some years ago by the Medical Society of the State of New York, but we are by no means prepared to object to it. Humanity certainly demands that consultation should not be refused when requested by a patient who is attended by a practitioner with legal authority to practice and who is in good moral and professional standing. The fourth proposition to re-write the Code in "phraseology so plain as to make it a practical, common-sense document for daily guidance" has certainly very strong arguments in its favor. We have been for some time of the opinion, tacitly acknowledged by this recommendation of the Committee, that the Code as it now stands is not strictly practical in all its details. There will undoubtedly be a sharp struggle before these changes are adopted, but their adoption seems certain to come in the near future, if not next year. We thoroughly believe in a Code of Medical Ethics, but we believe equally that changes can profitably be made in the old Code, bringing it in line with modern ideas and with modern practice. We would heartily commend the suggestion of the Committee that the subject of ethics should be taught in medical colleges. The young medical man when he leaves college has, as a rule, very vague ideas upon this important subject. Many gross breaches of medical etiquette result from ignorance. The essential principles fixed in the student's mind by a professor whom he respects would save him in future years from many errors and sources of annoyance.

The President's address was a very excellent one. He did not commit himself upon the code question, but suggested as the question was so important, that it be referred for final decision to the State Societies in order that as full expression of opinion as possible should be obtained. He approved of national control of quarantine and of the creation of a national department of public health. The address on surgery by Dr. Mudd was devoted largely to the very important question of drainage, upon which his ideas were extremely practical and judicious. Ideal wound treatment would no doubt do away with the drainage tube, but the ideal is not yet attainable. The drainage tube is still a very important factor in the management of wounds. Appendicitis, as was to be expected, received considerable attention. He justly claimed that recent years have demonstrated that the American idea of the pathology of inflammation in this region, is correct. A notable address was that of Mr. Ernest Hart, of London, upon cholera. He argued that it was exclusively a water-borne disease—a true filth disease, caused by dirty people, in dirty places, and spread by dirty water. The meetings of the Section in Medicine were notable for the very excellent discussions, the papers most of them being of moderate merit. The treatment of pneumonia offers a wide field for discussion, for it is undoubtedly a fact that it is a more serious disease than in former times. Notwithstanding the various explanations given in the discussion, it is no doubt true that in our increased knowledge the rate of mortality is not decreasing.

Dr. Wyman's address in State Medicine was also a most interesting one. It argued that as races of men and animals have become extinct, so races of microbes have had their rise and fall, and believes that the latter part of the nineteenth century will be notable for the virtual extinction of certain microbes. He devoted his attention chiefly to yellow fever, small pox, typhus fever and cholera. He cited as a healthful sign of the time the fact that the Board of Health of New York had virtually suppressed typhus fever, although it had appeared in a section of the city more densely populated than any other city in the world. This result had been effected by energetic, scientific disinfection, and the enforcement of proper laws. Recent years had demonstrated that perfect sanitation, as in England, and perfect quarantine surveillance, as in the United States, can protect a nation from as dreaded a disease as cholera.

The resolution recommending that the edition of the United States Pharmacopœia soon to be issued, as well as the National Formulary be at once practically adopted by physicians in prescribing, and pharmacists in compounding, was a very proper one, and it is to be hoped that it will receive due attention from the profession.

NO OPENERS

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ORIGINAL ARTICLES.

ARTICLE I.

A NEW METHOD OF EMPLOYING REGULAR VIBRATORY MASSAGE IN DISEASES OF THE NOSE AND THROAT.

By W. DULANY THOMAS, M.D., Baltimore, Md.

As far back as 3000 B. C. we find reference made in the Chinese manuscript Kong Fau to operations closely allied to massage, while Celsus describes more minutely its therapeutic application, and suggests that friction be employed for the removal of deposits, and for the relief of pain. Hippocrates, likewise, proclaims its value, and says: "A physician must be experienced in many things, but assuredly also in rubbing, for things that have the same name have not always the same effect. For rubbing can bind a joint that is too loose, and loosen a joint which is too tight. Rubbing can bind and loosen, can make flesh, and cause waste." While these authorities agree upon the usefulness of rubbing, they did not, of course, appreciate nor employ it scientifically. By massage, as practiced in the nineteenth century, we mean "an application of measured motion to disease," or a treatment of various diseased conditions by an application of scientific manipulation. whether this manipulation be performed by the hands of the operator or by an instrument especially devised for the purpose. Performed manually massage may be subdivided into *effleurage*, *pétrissage*, *massage á frictions* and *tapotément*.

By *effleurage* we mean a stroking movement, made as far as possible in the direction of the muscular fibers, with the palm of the hand. Breuster, of Berlin, describes it as follows: "Effleurage consists of slow gentle strokes in a centripetal direction along the course of the veins and lymphatics made with the palm of the hand and with the pressure intermitting so as to cause passive peristaltic action." It has been suggested by Graham that these movements be performed at the rate of 150–360 per minute.

Pétrissage is more excitant in its effect. It consists in picking up a portion of tissue, subjecting it to firm pressure, and rolling simultaneously it and the adjacent tissues. Reibmayr, in speaking of *pétrissage*, describes it as a manipulation consisting of pressing, compressing and squeezing of the parts to be subjected to treatment. This form of massage is particularly applicable to the neck, and also to the loins and limbs. "It is a powerful excitant to the capillary circulation, a stimulant to secretion and an awakener of dormant nerve energy."

Friction or *massage á frictions* employs both the tips of the fingers and the palm of the hand, and consists in placing the palm of the hand on the limbs, and moving it from below upward, aided by the fingers, which perform simultaneously a circular motion.

Tapotément resembles percussion and is performed with the tips of the fingers, the back of the hand half closed or with the radial or ulnar aspect of the same. It is an active stimulant, dependent upon the force used, and must serve to quicken the circulation, and restore the part to a normal condition.

This brings me to speak of the physiological action of massage in general. Eccles has demonstrated that effleurage stimulates the skin muscles and produces dilatation of the capillaries, increasing the rapidity of the circulation and cardiac action.

Pétrissage forces the lymph from the tissues, is a stimulant to the circulation, and decreases in size the part operated upon. Keeping in mind these facts, we are better able to understand how massage relieves the engorged mucous membrane consequent upon a catarrhal inflammation of the nose and throat, and are better able to appreciate its value when applied.

Like *pétrissage massage á frictions* produces a stimulation of the capillaries, and thus hastens the flow of lymph and its absorption through the proper channels. That this absorption does occur is proved by Von Mosengeil's experiment. Taking a number of rabbits Mosengeil injected into the knee joint of each a solution of Indian ink. At intervals massage was practiced upon the right knee, while the left remained untouched. After twenty-four hours the animals were killed and the parts subjected to inspection. The left knee-joints were distended with fluid, while the right side, which had been manipulated, showed an entire disappearance of the substance injected. The lymphatics on the right side, however, were full of particles of Indian ink, while the corresponding side revealed no such appearance. The conclusion necessarily arrived at was that massage promoted absorption by the lymphatics.

Clinically as a result of this rejuvenation of the tissues we find that cataracts disappear, old ulcerations heal, chronic constipation and neuralgia relieved or cured, stiffened joints made supple, deposits and thickenings absorbed; as regards this latter claim, Dr. Walter Johnson says: "If any surgeon or physician who has not hitherto had his attention directed to this point will manipulate the flesh of his patients, he will be surprised to find in how many cases he will detect thickenings, hardenings and swellings in various parts. He will find the necks of nearly all his patients who have suffered for any length of time from head affections swollen and indurated, with most probably enlarged absorbent glands in the neighborhood. The neck and shoulders will frequently be tender to the touch, and the muscular and other fibers will be dry and will crackle perhaps on pressure." As proof of their dispersion, Beveridge found that they could be dispersed by friction, and that coincidently with their removal, the patient's health returned.

For the relief of the pains of atitis media and furuncle, Palitzel recommends massage and centripetal stroking over the mastoid and in front of the ear and along the side of the neck. He claims for it a depletive action by which the swelling and redness diminishes in the narrow canals of the auditory apparatus. The antiphlogistic effect of centripetal stroking of the neck has proved efficacious in inflammatory conditions of the eustachian tube and middle ear, and according to Gerst the same manipulation is beneficial in "nervous deafness," whatever that may be. The same author gives a very encouraging statement of the effect produced by centripetal effleurage of the nose and throat through its depletive action upon the veins and lymphatics, and reports up to 1879 2 cases of acute catarrh of pharynx, 10 cases of naso-pharyngeal catarrh, 9 cases of catarrh of pharynx, 1 case of naso-pharyngeal catarrh with ulceration of the nasal mucous membrane, 1 case of chronic catarrh and ulceration of the larnyx in a patient suffering from phthisis pulmonalis. In addition is claimed a decrease of redness and tumefaction of the mucous membrane, a disappearance of heat and pressure and relief of the embarrassed respiration. A recovery is claimed in a very short space of time; on an average in cases of naso-pharyngeal catarrh of 3.2 days; in pharyngeal catarrh 1.8 days; in laryngeal catarrh 3.5 days. He also reports two cases of angina and laryngitis syphilitica, which had been previously treated with mercurials, to be relieved of the local symptoms in one case in 5 days, and in another in 7 days.

While not so exuberant as Gerst I can from personal experience vouch for the prompt effects produced, as the following case may illustrate.

Miss S. W. came to me for treatment of a most annoying case of naso-pharyngeal inflammation accompanied with stenosis and an abundant discharge of mucus from the post pharyngeal space. On account of the existing stenosis respiration was difficult and she breathed almost constantly through her mouth. By the usual methods relief, if any, was slight and I determined to give massage a trial. Accordingly previous medication was stopped and frictional massage employed. Since then she has continued to improve, shown by considerably easier respiration and decrease in the amount of mucus expectorated.

The following case, reported in the *Medical Mirror* for November, 1892, by W. H. Daly, M.D., of Pittsburgh, will serve to show a result even more flattering than that given by me. Dr. Daly's case was that of a "patient suffering with chronic nasal and pharyngeal catarrh, who had in addition, plaques of tough whitish fibrous tissue, indicated by irregular spots on the tonsils of about the size of a quarter of a dollar in aggregate area, the tonsils themselves being hypertrophied of about the size of an almond. These spots were subjected to persistent massage for about two months, the results being in that time they had almost entirely disappeared, the tonsils were reduced in size and improved in appearance, the whitish-gray basement tissues assuming a normal pink appearance of health.

Judging from my personal experience and those of my colleagues I can but believe that we have in massage a very useful adjunct to the treatment of nose and throat affections. But our efforts are necessarily crude. At present it is our habit to employ an instrument called the Garey vibrometer, and by slight taps, or by *massage á frictions*, to awaken in the affected part a healthy action. But as before stated our methods are crude and we soon tire of this means of applying massage and our manipulations cease after one or two minutes. The movements necessarily are also irregular; those at the commencement of the séance being easy, while those toward its close are somewhat irregular and painful to the patient, because of the slight muscular exhaustion produced on the part of the operator. Regular vibratory movements are not painful, but irregular action is productive of distress to the patient. To obviate this annoyance it has occurred to me that the vibrometer—an instrument lately introduced, and, I believe, much appreciated by those who have used it—would fulfill all the requirements. Upon suggestion the Vibrometer Co. purpose making arrangements by which an instrument may be adjusted to the vibratory arm of the instrument, and the excursion of the vibratory motion gauged from one-quarter to one-hundredth of an inch, and with a velocity of from fifteen to two vibrations to the second.

Thus, by this instrument, we will have the power to regulate the force applied, varying from quite sharp raps to a gentle vibratory movement; the intensity of the force employed and the duration of the séance depending upon the requirements of individual cases.

The general literature on the subject, and the reports of cases given herein are very flattering, and, if we do not accept them in toto, we must, for the most part, agree with the old maxim, "where there is much smoke there is always a little fire." The cases tabulated have been treated by hand, and in a manner primitive and imperfect. If, then, such glowing results have been attained what may we expect from a vibratory movement which is graduated and regular scientifically applied and painless to the patient? Not only upon the part of the patient will this be appreciated, but it will be a boon as well to the masseur, who has heretofore experienced the irksomeness of the task.

According to the reports of cases, the "Garey Vibrometer," by which name the instrument is known, has produced some remarkable cures of tinnitus, the result of catarrhal inflammation of the ear. Not only does the report include tinnitus, but comprises, as well, cases in which hearing was only possible when aided by the use of an ear trumpet, and in which, after fifteen or twenty treatments, the voice was distinctly heard standing several yards from the speaker.

For the treatment of aural diseases, the instrument is so constructed that the vibratory motion generated is transmitted through rubber tubes to the ear. The transmitter being accurately fitted to the external auditory canals, vibrations are referred from the diaphragm of the instrument to the membrani tympani, and no matter the number of movements made per second, the tympanic membranes respond and vibrate in unison with those generated by the instrument.

Now, as previously mentioned, it appears to me that if such results have been attained in diseases of the ear as are cred ted to the use of the instrument, why cannot this same measured vibratory motion be applicable to nose and throat affections. Excellent results have been attained by the employment of a probe propelled by the hand, and it now remains to be seen if not more encouraging results can be acquired by the force applied mechanically. Moreover, the laborious part of the treatment is narrowed down to but little more than holding the probe in position. Thus, it is evident, that through the use of the vibrometer we may acquire an easy, and I trust, a positive cure, for many cases of catarrhal inflammation of the nose and throat, and I feel quite confident the day is not remote when this means of applying regular and measured massage may form a part of the specialist's armamentarium.

ARTICLE II.

CLINICAL REPORT OF A CASE OF HEPATIC ABSCESS.

By A. J. Bloch, M. D., Visiting Physician to Charity Hospital; Clinical Assistant to the Chair of Physical Diagnosis and Practice of Medicine, New Orleans Polyclinic; Assistant Instructor in Physical Diagnosis, Tulane Medical College.

Mr. President and Gentlemen: My only excuse to read a paper before you this evening is prompted by a desire to furnish you with my unfortunate experience, which, probably, might be of some benefit to some of our members.

I was called on the 30th of March last to see a gentleman sent from the country by his physicians to see whether surgical treatment could not be of benefit to him. Mr. B. was a native of Louisiana; his family history was free from tuberculosis or syphilis. Prior to January, 1892, he enjoyed excellent health, at which time he was first confined to his bed by fever and pain in the right side. After prolonged medical treatment he experienced no relief, and came five months subsequently to New Orleans. This proving of slight benefit to him he returned home, and again came to New Orleans, this latter time five months ago. Being discouraged, having experienced no benefit, he determined to return home and die. While on the train, he was suddenly taken with most violent pains in the affected side, and in another moment he coughed up what he supposed to be a quantity of blood, but which subsequently proved to be liver pus.

The diagnosis of his trouble was quite evident now; his general condition being so much below par, his physician at home placed him on cod liver oil, quinine and a cough mixture. They did not attempt a free incision to remove the septic material, not knowing exactly where to locate the pus cavity. Thus his condition remained, constantly coughing up pus, continuous septic fever and great progressive emaciation.

Upon taking charge of his case, I immediately explored and located a pus cavity in the right lobe of the liver. I could not make out any definite destruction of lung tissue. There was an abundance of râles; these, however, might have been due to accumulated pus in the bronchial tubes. Dullness was well marked at the lower lobe of the right lung. It was quite evident to me that a chronic pneumonia must have supervened from a constant irritation of the septic material coughed up. The day following my first examination I had him sent

[1] Read before Orleans Parish Medical Society, April 29, 1893.

to the New Orleans Sanitarium, and, on April 1, under chloroform, I resected the rib and made a large opening into the abscess cavity, removing fully one pint of very foul pus.

Fearing to irrigate under chloroform, as the cavity communicated with the lung and the water might clog up the latter and produce death from asphyxia, I packed the cavity with iodoform gauze and had the patient removed to bed. The patient rallied well; his pulse as before the operation was 155 a minute; his respirations 40. The following day I irrigated with a 2 per cent. solution of carbolic acid and substituted a drainage tube for the gauze. The change in his condition the next week was phenomenal; his temperature became normal; his pulse was reduced to 110, stronger and fuller; his appetite was inordinate, eating or asking to be fed whenever awake; his respirations from 24 to 28 a minute. He had been taking a tonic of iron and quinine, and when constipated a little sulphate of magnesia was given. Each day I irrigated the cavity with the carbolized solution, after which I injected peroxide of hydrogen, followed by iodoform and glycerine (ʒ iv to ʒ vi). On April 15 I went to pay my daily visit. I found my patient in a very gratifying state; he complained a little of his cough, but so confident did I feel in a future recovery that I promised to let him sit up in ten days. He was prepared to be dressed by the nurse in attendance, the patient assisting himself in the preparation. As soon as I introduced the nozzle of the syringe into the wound he began to cough; this was nothing unusual, as I experienced the same difficulty every day. I stopped for a moment, which gave him relief, and began again very gently to remove the pus. This time the cough became violent; my patient became cyanotic; I immediately grasped his pulse; it could not be felt; I tried every means possible to revive him, with no result; he was dead. I was unable to hold an autopsy and can account for his death to shock only, produced by a rupture of liver attachments, with a flow of pus and water into the abdominal cavity, superinduced by the cough.

The points of interest in this case, gentlemen, must be very apparent to you. Death might have ensued from several factors; firstly, from asphyxia or drowning the patient by irrigation; secondly, from shock resulting from a rupture of adhesions between the liver, abdominal wall and diaphragm. Another cardinal point is the danger of delay in making an early incision, to prevent a communication with the bronchial tube. Once this communication is formed the graver does the condition of our patient become. The constant passage of septic material through a lung, no matter how healthy, must leave destruction in its wake, and should we succeed in effecting a cure of the primary and graver trouble, we leave a suitable nidus for the propagation of the tubercle bacillus. I feel confident that my patient suffered from some such trouble.

The conclusion I draw from this case is: All suspected cases of liver abscesses should be explored early; a negative result will not increase the danger of the patient, a positive one will surely be of inestimable benefit If pus is located an early incision should be made, and the cavity thoroughly evacuated. If a communication has already formed with the bronchial tube, irrigation should never be practiced, but in its place the cavity should be constantly packed with iodoform gauze. The latter will absorb the pus and disinfect the cavity, and the patient will be spared the danger from which my patient died.

DISCUSSION.

In reply to a question of Dr. McShane, Dr. Bloch said that no search had been made for the amœba coli in the pus from the abscess.

Dr. De Roaldes asked concerning the size of the cavity and the prognosis. Dr. Bloch said that the cavity was very large; the patient was getting rapidly worse, and when first seen death seemed to be but a question of a few days. An operation was imperatively demanded.

Dr. Chassaignac said that the thanks of the society were due to Dr. Bloch for a graphic report of his case. It was highly interesting on account of its clinical features, and still more from Dr. Bloch's willingness to report it in spite of its fatal termination.

Many writers unconsciously acquire the habit of not reporting their unfavorable cases. Dr. Bloch's case impresses one important fact—namely, that the patient is not entirely out of danger even when the pus escapes freely through the lung. He believes that if Dr. Bloch had continued to pack the cavity with iodoform gauze instead of injecting a liquid, the patient would have made an uneventful recovery. He does not see how a little coughing could tear open such firm adhesions as must have existed in a case of such long standing. He disagrees with Dr. Bloch, however, in attributing death to the escape of liquid into the peritoneal cavity. He cannot realize how the introduction of a comparatively small amount of warm water into the peritoneal cavity could give rise to fatal shock. In these days of abdominal surgery, we drench the cavity with warm water without shock resulting.

Dr. Bloch said that he had arrived at that conclusion by a process of exclusion.

Dr. Sexton said that an abscess of the liver may open in several different directions:

It may discharge into the stomach, the intestines, through the diaphragm and the right lung, and it has been known to burst into the pericardium. It is not improbable that the injected liquid might have found its way into the pericardium in Dr. Bloch's case, for the heart stopped before the respiration. We need not be surprised at the fatal result in Dr. Bloch's case; most of his own cases had died. Those of his cases that recovered were usually superficial abscesses of the left lobe; the large abscesses of the right lobe were generally fatal. He has a case now under treatment in which the abscess was in the right lobe, and was quite large. He made an incision about four months ago, between the fifth and sixth ribs, and evacuated about two quarts of pus. He practiced irrigation, and passed a drainage tube through the opening. The cavity shrunk up so much that the tube could no longer be introduced. The man's wife has for some time performed the irrigating. The patient is now strong enough to come to the doctor's office. He has gained fifteen pounds in weight. Dr. Sexton condemns trephining of the ribs as a routine practice in abscess of the liver for the following reasons: necrosis of the exposed ends of the ribs is bound to take place, and thus a new disease is added to the old one. Furthermore, pus is apt to be absorbed through the cancellous tissue of the bone. Second, the traumatism incidental to the operation complicates the case; third, the sharp ends of the rib after the operation act as an irritant to the surrounding soft parts. Dr. Sexton has now in his service in the Charity Hospital a man whose rib has been resected for empyema. The empyema is well, but the man wants to have the necrosis attended to. Where practicable, a free incision in an intercostal space is to be preferred to resection. Last year he had a case of superficial abscess of the left lobe that was working its way to the surface; the diagnosis was very easy. In order to help the pus to reach the surface, he directed the patient to lie always on his stomach. He did this for awhile, and his condition was all that could be desired; but he became tired of lying on his belly all the time, and he changed to the dorsal position. The pus infiltrated the deeper parts of the liver and the man died.

Dr. Bruns said that many persons imagine that an examination of the pus from a hepatic abscess can reveal its source. That is a fallacy that ought to be done away with. Pus from a liver is just the same as any other pus.

Dr. De Roaldes did not think that the injection of warm water into the peritoneal cavity could have caused death from shock. During the Franco-Prussian war, while he was a surgeon in the French army, Dr. Robert, now practicing in Pau, was abandoned at Amiens, after the battle of Sedan, as unable to continue in service on account of sickness. Subsequently his old teacher, Dr. Moutard-Martin, diagnosed a hepatic abscess. The abscess was opened with a free incision, and irrigation practiced. During the irrigations the doctor frequently spat up mouthfuls of injected liquid. Dr. De Roaldes saw Dr. Robert two years ago; he was then a healthy man, and did not at all look as though he had once been regarded as a hopeless invalid. In those days resection of the ribs had not become popularized. Altogether Dr. De Roaldes had treated about thirteen cases; of these only two recovered. One of the successful cases was a vegetable dealer, of strong build. He resected one and one half-inches of rib, which afforded free drainage; but he afterward had to treat the necrosis of the exposed ends of the rib. In the other case the abscess was opened with the galvano-cautery, and simply irrigated. In another case, in consultation with Dr. Gaudet, the abscess was also opened with the galvano-cautery and the cavity packed with iodoform gauze. In a case that he saw with Dr. Renshaw, of this city, the abscess was opened and irrigation practiced. One day while they were irrigating, some liquid came out that had not gone in; the patient's wife recognized it as some broth that he had swallowed a few minutes before. He also vomited some carbolized water and had a diarrhœa of carbolized water. Later, a solution of some analine-dye was injected, and the man vomited some of the colored liquid, and had a colored diarrhœa.

Dr. Matas said that he regretted that he had arrived too late to hear Dr. Bloch's paper. The subject was one of unusual interest to him on account of the rather large number of cases that had come under his observation. When he stated at the last meeting of the State Medical Society, in 1892, that he had treated more than twenty five cases since 1880, some surprise was caused by the statement. Dr. Matas was not able on that occasion to state the exact percentage of mortality or of recoveries because he had not yet tabulated and analyzed his cases, but he intended to do this fully in a future paper, and the results, he thought, would show a positive gain in the percentage of recoveries since the adoption of modern surgical methods. His ideas as to the prognosis of hepatic abscess had been positively changed for the better since his student days. When he was a resident student at the Charity Hospital thirteen years ago he had been impressed most unfavorably with the career of these cases, so that he had begun his practice with the conviction that the diagnosis of hepatic abscess was almost as bad as a patient's death warrant. The unfavorable results then were due in his opinion to the extreme conservatism of the times, which caused the practitioner to avoid an active surgical interference

The patients were treated in the medical wards and repeated aspiration with some modifications was the rule. The result was protracted hectic, increased loss of liver substance and final death from marasmus. Operation by incision, if performed, was always done late, after all other measures had been exhausted and the patient was reduced to the most unfavorable condition for true surgical interference.

He thought that he had met with all the classical and typical conditions of hepatic abscess and many others that were not typical. He had not met with an accident such as recorded by Dr. Bloch. In abscess which had not burst into the bronchi he thought irrigation was certainly indicated and free from bad consequences. In the liver it was not as in the pleural cavity, where injection with even sterilized water had been followed by disastrous and even fatal consequences. He could not believe that death had been caused in Dr. Bloch's case by the escape of some of the injected fluid into the peritoneum, because the accidental escape of the hepatic pus of tropical abscesses without fatal results had been recorded; especially had this been noticed by the French, who, in their recent and extensive experience in Anam and Cochin China, had learned to practice the early evacuation of hepatic abscess by incision, without waiting for adhesions to form.

He, himself, made it a practice to wash out the abscess cavity thoroughly, and for this purpose always endeavored to gain free access to the interior of the cavity by free incision. He has at present in one of his wards in the Charity Hospital a case of enormous abscess of the right lobe of the liver, which illustrates his usual practice. In this case a free incision was made in the right hypochondrium, which allowed a good inspection of the interior of the cavity and revealed an anfractuous surface lined with partially detached and disintegrating sloughs. During irrigation, with a hot dilute solution of peroxide of hydrogen (a hot solution of common salt is used very frequently), the interior was swabbed and scrubbed carefully with a large mop of absorbent cotton or sterilized gauze held in the bite of a long hysterectomy forceps. This served the purpose of a safe blunt curette. It is necessary to do more than simply evacuate the pus; we must scrub away the partially detached masses of sphacelated tissue that line the cavity and which can never be expelled by simple irrigation through a tube, unless this be by a long and wasting suppuration. In this particular case, there was a long history of protracted hectic, and dysentery.

The patient was marasmic to an extreme degree. Dr. M. even hesitated as to the propriety of any operation. Still he felt it his duty to give the man a chance, and as he appeared to stand the anæsthetic (ether) better than was anticipated, he treated the abscess in the usual way. The right lobe reached the crest of the ilium, and over three quarts of pus escaped through the abdominal incision. After swabbing the interior with a cotton mop the cavity was packed thoroughly with iodoform gauze (5 per cent.) saturated with an emulsion of iodoform and glycerine, 5 per cent. The external dressings consisted in a heavy layer of bichloride gauze covered with absorbent cotton and held in place by a broad roller-bandage. The patient rallied perfectly from the operation, much to the operator's surprise, but the dysentery returned, as frequently occurs in these cases, but was checked finally. Over three weeks have elapsed since the operation, and the abscess is becoming smaller every day; the appetite has returned; there has been no fever; but in the last twenty-four hours a diffuse lymphangitis of the right foot and leg has set in which it is feared will alter most unfavorably the patient's prospects. Dr. Matas had tried the new antiseptic *alumnal*, in this case. He was not dissatisfied with the iodoform emulsion which he always used in systematically packing the cavity, but he thought that he had here an excellent case in which to test the reputed pus-inhibitory properties claimed for this agent. The alumnal was used in glycerine solution (5 per cent.), with which the cavity was freely irrigated before packing. These irrigations were made daily for a week, and were perfectly well borne by the patient. There was no irritation, and Mr. Lovell, the interne of the service, who conducted,the after treatment, was well satisfied with it, believing that the dressings were less soiled with its use than with solution; still it is difficult to estimate the comparative merits of a new agent in one case.

What Dr. Matas desired to emphasize most was the *early surgical* treatment of hepatic abscess, and by this he meant free incision, blunt curetting (scrubbing), irrigating, and thorough antiseptic packing. This is the ideal treatment applicable, because it converts an internal abscess into an open wound.

An incidental question is that of resection, or rather the recision of one or more ribs in order to gain free access to the cavity. This procedure should not be arbitrarily or unconditionally condemned. There are cases in which it is indicated and others in which it is not. We should be guided by the condition of the abscess and of the patient. He recalled a case that came under his observation not long ago. The patient was a man from Honduras. He had a large dysenteric abscess of the right lobe, which pointed below the ribs. It was simply incised, irrigated, scrubbed and packed. One year after the same patient came with another abscess, but this time it involved the convexity of the liver and Dr. Matas was compelled to resect three inches of the sixth rib in order to open a free avenue into the cavity. The patient again recovered and he did not have necrosis of the exposed ends of the rib nor has this been noticed in any of his cases. In another case which he treated with Dr. Veazie, the liver retracted under the ribs after a simple incision in the hypochondrium; and in order to pack the cavity thoroughly he resected four inches of the right costal arch and made thereby an osteoplastic flap which allowed a free exposure of the hepatic cavity. Dr. Matas is opposed to trephining the ribs, because it is easy to injure the intercostal vessels and nerves, and because unnecessary traumatism is caused thereby without the compensatory advantage of a sufficient opening. The ribs should be excised subperiosteally with the periostotome. The soft parts may be easily peeled off from a rib by simply passing a strong strip of sterilized gauze under the rib and moving it backward and forward in the manner of a chain saw. The denuded rib may be excised with a costotome or bone-cutting forceps or short saw, to any desired length.

Dr. Chassaignac said he wished to emphasize one or two points. The location of the abscess has to guide us in deciding upon a resection or not. The late Dr. T. G. Richardson was convinced of the importance of having a large opening. Dr. Chassaignac was formerly his student, and he had had a good opportunity of observing Dr. Richardson's methods. In one case he was not satisfied with trephining one rib, but he took out a piece of another. In this case it was easy to look into the cavity through the large opening and see large flakes of fibrin and pus attached to the walls of the abscess. Dr. Richardson passed in his finger and removed some sphacetated masses and flakes of pus that a stream of water could not dislodge. In those days gauzes were not much used. It was Dr. Richardson's custom to allow some of the antiseptic solution to remain in the cavity after irrigating it. He often closed the opening with bandages, which were renewed every day. Some of his cases made remarkable recoveries.

Dr. Bloch said that he did not deprecate irrigation in itself; he deprecated its use when there was a free opening into the bronchial tubes. While he was a resident student at the Charity Hospital he took notes on eight cases of abscess of the liver. In two cases the abscess was opened in the median line, a little below the ensiform cartilage: they got well. In the other six cases the abscess was seated in the right lobe; resection was resorted to and the patients all died.

Dr. Sexton said that the ribs and intercostal spaces vary in different individuals; in some persons the ribs are close together, in others they are far apart. The text-books advise, when the abscess has to be reached through the ribs to open between the sixth and seventh, or the seventh and eighth ribs in the axillary line. Here we can easily feel the ribs and judge of the width of the intercostal space. In his case, now convalescing, he felt that there was plenty of room, and he did not resect. He thinks it is bad surgery to resect where the intercostal spaces are wide.

Dr. M. J. Magruder didn't think it always necessary to resect a rib even when the abscess had to be opened above the lower border of the ribs, and mentioned three cases he had treated by simple free incision between the ribs, two of which made good recoveries, and the third is now under treatment and doing well. In two of these cases more than a pint of pus was evacuated, and in the other about ten ounces. In none of these cases was the cavity packed. Two large drainage tubes were introduced and the cavity irrigated daily with a warm 10 per cent. solution of hydrogen peroxide. Two of these cases occurred in the same person, who had a third one opened just below and an inch to the right of the ensiform cartilage. One week after this third abscess was opened there was a profuse discharge of bile, which continued several days, but diminished as the cavity filled up and finally ceased, the patient making a good recovery.

Dr. Matas said that Dr. Sexton was in error in regard to danger of wounding the pleura while excising a rib. The danger of pneumothorax had been greatly exaggerated and this fear had been one of the drawbacks in attacking abscesses of the convexity. When the abscess involves the upper surface of the liver, the inflammation causes a diaphragmatic pleurisy, which, together with the rise of the diaphragm from the hepatic tumefaction, causes an early obliteration of the lower pleural pouch. When a knife is thrust through an interspace it can not open the pleura because adhesions have caused a firm agglutination of the visceral and parietal layers. Godlee in his lectures on hepatic abscess, some years ago, showed that this was the condition. The incision should always be made below the line of dullness.

The size of the opening should be regulated by the size and depth of the cavity. In regard to the danger of allowing micro-organisms to enter with the atmosphere into the abscess cavity, he thinks it is far better to treat these abscess cavities by free and thorough evacuation of their contents and rely upon subsequent antiseptic packing than to allow the same micro-organisms to pass through a simple canula into an inaccessible cavity, where they may develop with impunity in the retained secretions and sloughs. Insufficient opening means sepsis; with the open method there is no hectic or sepsis.

Dr. Bruns said that he knows little practically about the subject, since his special practice has drawn him away from general surgery. He was contemporary with Dr. Matas in his student days at the Charity Hospital, when the treatment of hepatic abscesses was revolutionized. In those days the standard treatment consisted in aspirating with Dieulafoy's aspirator and then pumping a solution of carbolic acid back into the abscess-cavity with the aspirator in its unclean condition. Under this treatment, it was quite the proper thing for the patients to die, which they all did. The late Prof. Richardson is entitled to great credit for insisting on the abolition of this deadly treatment.

Dr. Matas said that as a matter of historical interest he would state that the first surgeon to resect a rib for thoracic abscess was the late Warren Stone, Sr. Dr. Richardson continued the practice and applied it first to the treatment of hepatic abscess.

EXHIBITION OF LARGE VESICAL CALCULI REMOVED BY CYSTOTOMY.

Dr. Matas exhibited two large calculi which he had removed from the male bladder and which were interesting on account of their large size and of the contrast of the methods adopted for their removal. The first calculus (phosphatic) weighed 2 ounces, 3 drachms and 50 grains (troy) and measured $2\frac{3}{4}$ inches by $1\frac{7}{8}$ by $1\frac{1}{2}$. It was removed, together with a smaller concretion weighing two drachms, from the bladder of an old man aged 70 years, who came to his service in the Charity Hospital four years ago. A median perineal section was made and perineal lithotomy was attempted, but the lithotrite, a new and massive Bigelow, of latest design, broke while biting the stone without crushing it, and the attempt to crush had to be abandoned. After dilating the neck of the bladder (à la Dolbeau) with a long bladder (Tieman's) rectal dilator, and then incising each lateral half of the prostate, the large stone was delivered, though not without exercising considerable force in the extraction.

The patient, in spite of his advanced age and poor physical condition, recovered and returned home, but a certain degree of urinary incontinence remained.

The other specimen (also phosphatic) had been removed two weeks previously by supra-pubic section. It weighs 3 ounces, 4 drachms, 16 grains (troy), and measures $2\frac{7}{8}$ by $2\frac{3}{8}$ by $1\frac{2}{8}$ inches. The patient is a young man who has been much weakened by prolonged suffering. The man is now in the service of Dr. Matas, where he is making a rapid recovery. This stone is larger than the first, but the comparative ease with which this stone was extracted, and the simplicity of the operation and its consequences, formed an agreeable contrast to the difficulties of the first operation, and emphasized the superiority of the supra-pubic operation over the perineal route.

DEMONSTRATION OF "MURPHY'S ANASTOMOSIS BUTTONS."

Dr. Matas exhibited and demonstrated on an artificial intestine the application of the device recently contributed to intestinal surgery by Dr. J. B. Murphy, of the Chicago Post-graduate School, and known as "Murphy's Buttons." This very ingenious invention had been described by the author in the *North American Practitioner* of Chicago, November, 1892, and in the New York *Medical Record*, December 10, 1892. Cholecysto-intestinal, gastro-intestinal, entero-intestinal anastomosis and approximation *without* suture could be secured by these remarkable "aids." The three sizes made by the manufacturers were exhibited and the simplicity of their application demonstrated. The only objection to these "aids," an objection which they have in common with all such contrivances, lies in the future possibility of contraction of the artificial fistula produced by them—the opening being amply sufficient, however, immediately after the detachment of the buttons. The remarkable clinical success of Dr. Murphy in the operation of cholecysto-enterostomy, usually a very difficult operation —technically speaking—was especially commented upon.

In addition to the danger of contraction, in future, of the artificial fistula created by the apparatus, there are other objections which more extensive experience and perfected technique may dispel, but which still remain as theoretical drawbacks. Among these should be mentioned the impossibility of separating the two buttons, once they are fully set and approximated; to separate them it would be necessary to pull them out bodily from the intestines, as they cannot be easily screwed apart while in *situ.*

Owing to the folding and tucking up of the intestinal walls around the stem of each button-half, it is possible that contact between the approximated surfaces may be imperfect, and that, in consequence, fæcal leakage may take place. A careful perusal of the recorded experiments by the author would convince one that this is indeed possible. It is possible also to cause premature sloughing of the compressed intestinal walls if the spring tension is too great. On the other hand, according to the inventor's experiments, the buttons may remain in *situ* nearly a month, which would be too long. During this time obstruction of the button canula could readily take place by fordo-impaction and a secondary operation might be required to get rid of the buttons.

AUGUST MCSHANE, M.D., Secretary.

ORIGINAL FRENCH TRANSLATION.

POST-PARTUM PUERPERAL AUTO-INFECTION.

By Dr. Secheyron. Translated for Gaillard's Medical Journal by H. McS. Gamble, M.D., Moorefield, W. Va.

With the prevailing ideas in regard to the complete efficacy of antiseptic measures, the idea of puerperal auto-infection may appear to be a simple plea intended to shield the accoucheur. The question ought not to be confined within such narrow limits. It is necessary to expose to broad daylight the reasons which may in an unfortunate case place antisepsy out of the question, and show the reality of puerperal auto-infections, *inevitable*, according to the expression of M. Doléris.

The origin of auto-infection is plain, well known; the patient is the bearer of germs, of local microbic colonies, the virulence of which becomes exalted and which by their multiplication and their generalization infect the organism.

These germs, especially those of every puerperal infection, of every suppuration, may be distributed upon the cutaneous surface, may be concealed in accessible cavities—natural, surgical, or accidental cavities; or, these germs are even inclosed, as if in a close vessel, in the deep-seated organs, or in cavities that are inaccessible without special operations.

Auto-infection may be of *external* or *internal* origin. The former may be avoided; against it is directed one portion of the rules of obstetrical antisepsy. The origin of internal auto-infection is more difficult to discover and, consequently, less amenable to prophylaxis.

Auto-infection of internal origin.—Auto-infection from internal causes may be attributed,

A. To lesions remote from the genital apparatus: local or general affections, eruptive fever, typhoid fever.

B. To genital lesions—utero-vaginal canal and annexes.

It may supervene: 1st, before the termination of pregnancy and determine an abortion or a premature labor; 2d, may appear at normal term only, during, after labor or even in the course of the lochial discharge. Infection, in every case, may become the starting point of disorders of septicæmia. Puerperal fever is not inevitable, but its invasion is to be dreaded.

Each one of these points rests upon acquired facts. Dr. Blanc, of Lyon, in a conscientious and quite recent work, has brought out the greater part of them. He has above all undertaken to show the evil influence of uterine and peri-uterine lesions upon the evolution of pregnancy in the midst of grave disorders; puerperal infection, acute, hyper-acute peritonitis, consecutive to the rupture or to the extension of foci of pelvi-peritonitis, of salpingitis.

He has, perhaps, left under a shadow, *post-partum* auto-infection *of internal origin.* Nevertheless the description of this infection deserves attention and to be understood.

Post-partum auto-infection may proceed from an *internal genital* source or from an *external* source, a cavity, *extra-genital*, such as an abscess, a furuncle, cutaneous erysipelas, cystitis, dacro-cystitis (Budin). Auto-infection of internal origin, having relation to general affections, will not be considered here.

(The latter has just been made the subject of a very interesting work by our excellent friend and colleague Dr. Priolan, of Brives. This work was presented to the Association for the Advancement of Sciences (session at Pau, September, 1892). In this memoir, based upon personal observations, Dr. Priolan, resting upon the works of Chautemesse, Doléris and Widal, believes that infectious germs (staphylococci, streptococci, bacilluscoli,) mingled with the blood current, may infect the placental wound. The infected uterus may become the point of departure of a general secondary infection.)

I will before all consider auto-infection of internal genital origin. The germs may be inclosed within the uterus—origin *intra-uterine*—or may be found outside of the uterus, in the annexes, in the vulvo-vaginal canal. The origin is then genital, but *extra-uterine.*

1.—Infection of uterine origin. Infection of uterine origin may be observed in every uterus attacked by metritis, even a slight metritis. Labor becomes the occasion of the awakening of anterior diseases. Perhaps the following ordinary, undeniable causes are concerned: traumatism, fatigue, abuse of coition, sudden modifications of temperature which excite lesions that are latent, that have almost vanished, apparently cured. Again it may be that the slightest neglect of antisepsy causes a considerable contre coup, the germs finding a very propitious medium of culture, a placental site surrounded in advance by infected tissues.

In order to possess the right to assign a purely internal cause to these infectious disorders, we must be very certain of having practiced antisepsy in a scrupulous manner and in a sure field. Is it not proper, however, to note those diseases that have supervened in spite of all possible antisepsy, perhaps even incomplete in a few details, when one can introduce anterior lesions of the uterus as factors of gravity?

The uterus, in this case, is a weak point and its weakness will be placed in relief upon the least fault.

An example of this form of benign infection is shown in the following case, the history of which I here present.

Case I.—*Résumé : 32 years, first pregnancy at term, labor normal, lochia slight ; consecutive cervical metritis.—Second pregnancy, confinement at term, forceps ; slight puerperal metritis. Colpo-perineorrhaphy, uterus curetted ; excision of the lips of the cervix ; very great improvement.*—X., 32 years old, lymphatic, married to a syphilitic ; syphilis three or four years before marriage, treated in quite a correct manner. First labor at term, normal ; consecutive milk fever, abdominal pains ; child remained puny, is nine years old at this time, small, development conspicuously below his age.

Eight years after confinement, another pregnancy ; pantings, renal and abdominal pains, very profuse leucorrhœa, muco-purulent during the pregnancy ; treatment specific, because of the very marked headaches ; not a vestige of syphilis either in her personal antecedents or upon herself.

I advise a rigid vaginal antisepsy ; repeated douches, glycerinated antiseptic tampons.

The discharge quickly diminished, but did not cease entirely.

Labor took place at term. This lasted more than 10 hours ; O. I. G. A. When the head reached the vulva, the patient was exhausted, without strength; the womb was inert, without active contractions. A simple application of the forceps at the vulva happily terminated the labor ; quite pronounced laceration of the fourchette.

The delivery of the secundinos was rapid, complete. Antiseptic precautions were very carefully taken during the different stages of the labor ; two or three examinations by touch only.

For three days the lochial discharge was normal ; then the pulse rises, the patient complains of heat and of the abdomen, which is painful, particularly in the region of the cervix. The perineal laceration is in a fair way of cicatrization ; the neck is not torn, but it is large, gaping ; its lips are as though everted ; glairy pus flows from between the lips. An intra-uterine injection is given every day, *largâ manu*, with a solution containing salol. A few days after, all danger had disappeared ; a complication, however, had manifested itself ; in the region of the right cul-de-sac, a doughy feeling was remarked, a juxta-uterine tumefaction, difficult to define, painful to palpitation and touch combined. There was no doubt that the metritis had determined a salpingitis or aroused old lesions.

Warm vaginal injections combined with warm clysters caused all the symptoms to disappear with the exception of the muco-purulent discharge, which reappeared quickly.

Eight months after her confinement, I noticed all the symptoms of a cervical metritis with elongation of the neck and descent of the uterus; the vulva was widely open and the neck sometimes appeared protruding through it; the patient was subject to lumbar pains; walking was painful.

With the assistance of Doctors Pascal and Candelon, we performed the operations of cleansing the womb, excision of the lips and a colpo-perineorrhaphy.

Two months and a half after the operation the patient was better and enchanted with her condition. She seldom experienced any renal pains; the leucorrhœa, which had disappeared a few weeks, had returned again, but to a much smaller degree.

The analysis of the case shows the existence of a puerperal metritis of slight intensity without any great general reaction having supervened in the sequelæ of an accouchement in which the usual antiseptic precautions were observed. The accoucheur alone, if there had been any fault committed, would have been to blame. I do not believe that I have to reproach myself with the least negligence and I had no dressing to apply in the city at that time. Antiseptic washes, antiseptic measures during the application of the forceps and the lochial discharge were not forgotten. The patient was not touched by any one of the attendants or during the interval between the dressings. The surroundings were favorable to the observance of all the rules of hygiene and of cleanliness.

I was therefore surprised when I saw some puerperal symptoms supervene. I hastened to combat them; soon the symptoms disappeared and I was not long in discovering the traces of a former lesion of the cervix which could not be imputed to the last confinement; likewise I was able to determine the existence of puerperal troubles excited by the lesions of an old metritis and engrafted upon them.

I shall content myself with remarking their precocious appearance without any great noise, and the rapidity of action of the means employed, such as intra-uterine injections and intra-uterine antiseptic crayons.

Symptoms.—The symptoms assume in these cases some peculiar features of prompt appearance; they present a relative benignity, unless complications, peri-uterine inflammations are awakened.

Their appearance is announced upon the second or third day by slight erratic shiverings; the pulse is more rapid, smaller; then the cheeks become colored, hot, flushes of heat pass over the face; the head, free the evening before, becomes heavy, painful; the appetite disappears; the tongue is dry, clammy. The temperature rises to 38° or 39°. The patient feels tired and still accuses the labor of being the cause of her lassitude and of her renal pains.

The abdomen, scarcely distended, is painful principally in the supra-pubic region, deep down on a level with the cervix.

The flow of blood, but slightly pronounced on the day before, becomes abundant, sanious and in a few hours purulent.

The muco-purulent discharge, purulent especially if the lesion is internal, supra-cervical, is of an abundance but little en rapport with the date of the confinement.

The cervix is dilated; the uterus is painful upon being touched, upon motion; its process of involution has been arrested. In short, the general symptoms are those of a slight infection, while the local signs, the purulent discharge in particular, rather indicate extensive and advanced lesions. This condition persists a few days and ceases rapidly under an active and rational therapeusis.

Abandoned to itself, the revived metritis would light up foci difficult to limit. The lesions rapidly provoked, such as pelvi-peritonitis or salpingo-ovaritis, would darken the prognosis in the most serious manner. The puerperal infection would thus be complete.

II.—*Extra-uterine genital infection.*—The second category of post-partum auto-infection contains the cases of *extra-uterine* genital infection, that is to say the cases of puerperal infection consecutive to lesions of the annexes, salpingo-ovaritis, phlegmons, pelvic suppurations.

Puerperal infection of inferior genital origin, attributable to a vaginitis, to a bartholinitis, is very well known; it is very much to be dreaded. From the era of antisepsy, accoucheurs have directed every effort toward the vulvo-vaginal canal, a dangerous zone par excellence, as dangerous to the mother as to the fœtus. One understands how micro-organisms capable of engendering all at once, in a few moments, purulent ophthalmias during the pelvi-genital passage may become the origin of a rapid and grave genital infection. Too many lesions, vulvar, vaginal, uterine lacerations form wide ports of entry to the virulent germs.

Infection derived from the annexes is less known; it was because of a grave attack that supervened under our hands in 1890, in spite of all our precautions, in a normal labor, that its reality was impressed upon us, and upon those of our distinguished confrères who were called to verify it. No doubt, it is always possible to deny, to declare that antisepsy has not been observed in all its requirements. I would like any one who might offer this objection to have a similar case, in order to enlighten his mind, if the life of a patient was not at stake.

Lesions of the annexes, results of a labor, as a general proposition must frequently coexist with pregnancy. It is in fact admitted by the majority of gynæcologists that uterine, or juxta-uterine lesions, do not condemn women to certain sterility. Almost all can support their opinion by personal experience. I accept their views, and I admit that often, in view of the extreme frequency of juxta-uterine, even uterine lesions, the accoucheur sees a pregnancy evolved in a diseased uterus, or in connection with diseased tissues.

A distinction ought to be established at the very beginning. The cases of pregnancy are especially noticed in cases of metritis with or without malposition of the organ: retroflexion, retroversion. If a displacement exists the uterus is generally free, maintained only by loose adhesions. These uteri can conceive, but the nature of their lesions exposes them to abortions, or at least to painful pregnancies, marked by vomiting, renal and crural pains.

The memoir of Dr. Blanc with good reason mentions abortion as a possible accident, more especially if the uterus is fixed by a retracted, cicatricial uterine ligament. The accident is in this instance of a mechanical nature. The uterus is restrained in its development. Contractions are incessantly solicited by these bands that oppose ascension, and present to a certain degree an obstacle to the increase of the volume of the organ. It is to this cause that we attribute an abortion which supervened in the second month, and was fortunately followed afterward by a normal pregnancy.

CASE II.—*Résumé: 26 years old; four labors at normal term.—Metro-ovaritis with uterine retroflexion.—Cleansing and antiseptic treatment of the cavity.—Pregnancy three months after the treatment; abortion at two months, a few months later another pregnancy with confinement at term; lochia normal. Reappearance of the pains and signs of retroflexion with ovaritis.*

Mme. X., aged 26 years, is the mother of four children, one of whom died about the age of four years.

In her first confinement, which is painful, attended with fever, Mme. X. is attacked with a uterine affection, metro-ovaritis with retroflexion. She is improved by several seasons at Saint-Sauveur. The desire of another pregnancy, the pains experienced in walking, in standing, cause the patient to accept with alacrity the idea of an active intervention.

A uterine cleaning is performed with the aid of our colleague Dr. M. Maurel, former interne of the hospitals of Paris; an antiseptic treatment of the uterine cavity is established after the cleansing. The ovarian pains persist, but more feebly; they, however, allow the patient to attend to her duties. Against the pains are employed vaginal and rectal injections with warm fluids. Notwithstanding two menstrual interruptions, the patient continues the treatment. A few days after the second period I am called to determine the nature of a grave metrorrhagia, and it is easy for me to diagnose a miscarriage; the uterus is about the size of a large egg and the half open cervix allows me to feel a body composed of membranes, which membranes are soon expelled in the midst of very painful contractions.

The lochial discharges are normal; during a few days, the patient complains of renal and ovarian pains of violent character.

A few months later a new pregnancy supervenes. The earlier months are not painful; toward the fourth month, the renal and lumbar pains declare themselves with such intensity that the patient has to remain stretched upon a pallet. Rest in bed is badly borne, as well as sitting upon a chair, in an armchair. The pregnancy goes to term and the labor is completed in a few hours without difficulties of any kind. (Head presentation.)

The subsequent course is excellent and the mother after a trial of a few months is obliged to cease nursing.

Present Condition.—Eight months after confinement, the utero-ovarian lesions still persist; they manifest themselves by the same pains, by attacks of sub-acute inflammation, attended with tumefaction, with painful doughy swelling of the culs-de-sac, especially the left. During these periods, the body of the uterus placed in retroflexion is painful to touch and to the slightest movement.

A serious lesion such as a sero-purulent collection, pelvic peritonitis, abscess of the broad ligament, suppurative ovaro-salpingitis renders the chances of sterility very great. It is most unusual to observe pregnancy in these cases; however, it may occur; peremptory facts demonstrate this.

From that moment, several events are possible. The pregnancy goes to term or is interrupted by an abortion, by grave affections of acute infection, peritonitis by perforation or by propagation.

Arrived at term, the pregnancy is terminated by a normal labor, and everything is restored to order, at least during the period of lying in; or,the proximity of lesions, the exaltation of virulence of attenuated germs, becomes the origin of a uterine infection, of a general peritonitis, of purulent collections ready to empty themselves into the vagina, the abdominal wall, the bladder, the rectum, etc.

Each one of these varieties rests upon well established facts, well known. One of the most remarkable among them is that which carries the infection by evacuation through the uterus, or the vagina, of purulent collections derived from the tube, from pelvic abscesses.

These collections may be anterior to pregnancy or may have been formed during its evolution. They may also have another origin, and this latter origin must be very frequent. Exudations, purulent nuclei, latent microbic colonies, of *attenuated virulence*, situated in the tube. the ovaries, or the broad ligaments, may assume in consequence of the labor, of the presence of new micro-organisms, an exaltation of their virulence. It is then not astonishing that we see formed, in a few hours, or a few days, important purulent collections that provoke infectious diseases and that sometimes empty into the uterine cavity. The uterus, the seat of the placental detachment, will thus be found infected or the uterus will even be infected under the same conditions as the entire organism. In these grave puerperal infections, the woman is a *veritable pus sponge*, according to the energetic expression of Prof. Pajot.

She supplies so much the better medium of culture according to the length of time that the accouchee who carries in herself the germs of infection, has been in bad health. Before her pregnancy, she has been wearied by peri-uterine suppurations, at times worn out by juxta-uterine fistules. She is often anæmic, rendered chlorotic, dyspeptic, by privations of air, of movement, which every serious uterine affection entails.

This picture of the conditions of morbidity is carried perhaps to the gloomy degree, in order to clearly show the cases that ought to be especially the object of apprehension to the accoucheur. It does not comprise all cases; it does not indicate those which might present the least obstacle to pregnancy. Yet it is the latter which are the most instructive because they are the most unexpected. A disease of the annexes having never required special treatment, marked by ovarian, renal pains, by a fetid leucorrhœa upon several occasions, by difficulty in walking, in standing erect, may be the cause of troubles in a chloro-anæmic patient, overworked, debilitated by physical fatigue. This state of exhaustion constitutes in all cases a predisposition to suppurations.

(*To be continued.*)

CLINICAL LECTURE.

ON ONE HUNDRED CASES OF TUMORS OF THE URINARY BLADDER.

Delivered at the London Hospital, by E. HURRY FENWICK, F. R. C. S., surgeon to the London Hospital, and Surgeon to St. Peter's Hospital for stone and genito-urinary diseases.

GENTLEMEN: I have various reasons for selecting the subject of tumors of the urinary bladder for my clinical lecture to-day. Foremost among these is the desire to place before you some of the conclusions I have drawn from an experience of over a hundred proved cases of the disease. This material, moreover, permits me to reiterate and to emphasize the opinion I expressed in 1888[1] upon the diagnostic and prognostic capacity of the electric cystoscope. The subject is too wide to allow of its compression into a single lecture, so that I shall select those points which seem to me to have an important practical bearing upon the judicious and successful treatment of the disorder.

Any textbook will give you the pathological varieties of vesical growth, but for my present purpose I shall ask you to consider them under their simplest clinical divisions—that is, according to their benign or malignant character. As the vesical tumors encountered in childhood are very rare, mostly of the sarcomatous type, always inoperative and invariably fatal, my remarks will refer to adult life of both sexes.

Tumors of the bladder, like similar formations of other mucous surfaces, vary greatly in their rapidity of growth and destructiveness. We are able to recognize a succulent form of epithelioma of the mucous membrane of the bladder which in its initial symptoms and in its comparative torpor resembles the various forms of villous papilloma for a short period. This fact compels us to subdivide malignant growth, and to form three groups: A. Benign tumors, papillomata. B. Succulent epithelioma of the mucous membrane. C. Denser, rapidly destructive epithelioma invading the muscle wall almost as soon as the mucous membrane.

The frequency of the occurrence of these three varieties.—I cannot furnish accurate statistics concerning the frequency with which you will encounter the slow-growing surface epithelioma, for up to quite lately such cases were sent to me only in advanced periods, when they had already commenced to infiltrate, and when invasion has taken place they resemble the denser forms. Benign tumors may be placed as occurring in 20 per cent. of all cases.

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[1] Author, British Medical Journal, April 14, 1888; ibid., October 13, 1888; ibid, May 9, 1889; ibid., October 18, 1890.

Clinical History.—Each of these three groups possesses a well-marked clinical history. Now the onset symptom, or group of symptoms, which first attracts attention to the urinary organs, does not herald the birth of the growth. The onset symptom really marks the termination of the first stage of the existence of the tumor. In nearly every case of tumor which I have cystoscoped within a few weeks of the commencement of the symptoms I have found the growth to possess a surface characteristic of the type to which it belongs, and to be of a size above that of a monkey nut. Again, in examining cases by the cystoscope on the recurrence of the symptoms after operation, I have found that the hemorrhage only appears when the tumor has reached a decided size.[1] Tumors have, moreover, been met with by chance in the *post-mortem* or dissecting rooms, and it has been ascertained that they had given rise to no symptoms during life, the patient having succumbed to some other disease before the first stage of the tumor had been passed through. This first stage may be conveniently called the "latent" stage.

The latent period is brought to an abrupt termination either by the appearance of blood in the urine, or by the sudden development of irritability of the bladder and pain on micturition. Most writers since Gross have laid stress upon the character of these onset symptoms as being indicative of the nature of the growth, and have asserted that the appearance of hæmaturia points to a benign character, but that vesical irritability reveals a malignant type. We now know this to be a mistake, for the softer forms of epithelioma bleed some months before they commence to infiltrate.

We possess accurate facts which permit us to assert that 92 per cent. of benign growth and a large proportion of malignant growth mark their transition from their latent first period to the second period of their existence by the appearance of blood in the urine. The importance of this statement cannot be overestimated when we remember that it is only in these two classes of tumor that operative procedure is indicated and advisable. The third and infiltrating group, which starts with cystitis, is quite inoperative. We shall therefore confine our attention strictly to the first two groups.

[1] I have met with two exceptions, Cases 56 and 57, both of which were examined within two months of the initial hæmaturia: one was the size of a pea, the other the size of a split pea.

The onset hæmorrhage from a benign growth differs sometimes from that caused by a succulent epithelioma of the mucous membrane. In the former the loss is generally slight, consisting most often of a few drops of blood at the end of a clear micturition, or of a single evacuation of rosy colored urine. Its advent is nearly always causeless. In epitheliomata, however, the patient often attributes the onset to a strain, to jolting in a conveyance, or to overfatigue. The onset hemorrhage is not infrequently more profuse. Both hematurias, however, share this characteristic, that they are at first painless and unaccompanied by vesical irritability, unless, of course, there is retention or blockage from clot. The hemorrhage is intermittent in both groups, but in the benign the intervals of perfect health and normal urine are longer than in the epitheliomata in the proportion of years to months. It is, however, not the only symptom in the second period. Should the papilloma become pedicled, or should it tend by its position to obstruct the free outflow of urine, other symptoms will be superadded to the hæmaturia, such as obstruction to the stream, straining, and pain at the end of the penis. It is usually rare for this to occur within the first two years. Sooner or later both forms of growth will enter upon their third period—namely, that in which cystitis appears as a complication.

In benign tumors the third period may be delayed for fifteen or for twenty or more years (Cases 53, 61); but once cystitis has set in, renal complications are apt to supervene, and the operation for removal has but an indifferent chance of success. With the epithelioma the advent of the third stage is of course much more rapid. The growth begins to break down and infiltrate usually after nine months of painless hæmaturia, and then all hope of successful removal is gone.

Diagnosis.—Intermittent attacks of hæmaturia, unaccompanied by urinary pain, frequency of micturition, or obstruction to the stream, occurring in a patient about or over 30 years of age who has intervals of perfect health and normal urine, should be regarded as most suspicious indications of vesical growth. An examination of the urine usually affords a clue to the vesical origin of the hemorrhage; vesical characters being the formation and passage of large irregular-shaped clots, of brightish blood-colored urine and of the appearance of blood at the completion of clear urination. Although any one of these characters may be absent at any one particular time in the second stage, yet they may be met with at another, and inquiries should be made concerning them. Moreover, in a small percentage of the cases (19 per cent.) straps of growth are passed, and these are certain evidences of the vesical position of the tumor.

It is well to remember that "villous" scraps are quite unreliable as guides to the benign character of the tumor, for 41 per cent. of vesical carcinoma have a surface covering of villous processes; and *pure villous* tufts coexist in one-sixth of the sarcomata and in one-fourth of the epitheliomata.

Diseases Simulating Tumors.—There are four groups of diseases of the urinary tract which evoke similar symptoms to those produced by benign growth in the bladder, and although the electric cystoscope in an educated hand will render the diagnosis certain in the majority of cases yet the instrument is not always available. It is therefore advisable to remind you of them.

1. Prostatic congestions in young men from excessive masturbation or sexual intercourse produces an intermittent symptomless hæmaturia.

2. In men over 50 a small uric acid calculus in an insensitive bladder or lodged behind a prostate produces a similar train of symptoms.

3. Certain renal hemorrhages such as are produced by latent carcinoma of the kidney or by chronic contracting granular kidney (West, Bowlby) need careful elimination by renal palpation and microscopical examination for casts, for they also induce a symptomless hæmaturia.

4. Lastly, urethral caruncle in the female often simulates a vesical papilloma.

But presuming you have made up your mind that the case is one of vesical growth, what circumstances would incline you to take a favorable view of the character of the tumor? Undoubtedly the length of time which the symptoms have lasted without inducing cystitis. If the bleeding has lasted for more than five years and the patient has not reached middle life there is every prospect of the tumor proving a pure papilloma.

On the other hand, when the patient has passed 45, when the onset hemorrhage has resulted from some slight violence, when it is copious to begin with or rapidly becomes violent and resists the action of hæmostatics, there is a grave fear that the tumor is a succulent epithelioma of the mucous membrane. I must confess I am still further inclined to view its character with suspicion, when I learn that there is a family history of longevity, or that the patient has passed through some severe mental strain, or some exhausting illness such as epidemic influenza, prior to the commencement of the symptoms. A strong history of carcinoma in the family may be present either with the benign or with the malignant growth. It should not bias you. I have removed growth from a bladder of one lady who had had two operations for carcinoma of the breast, and the tumor I ablated was a typical instance of pure fibro-papilloma. This was four years ago and she is still free.

Injudicious Treatment.—Now, it cannot be too strongly impressed upon you that the benign tumor and the succulent epithelioma before it has commenced to infiltrate, are both removable by operation provided only that they are attacked in the favorable period of their existence. The former can be ablated with a fair chance of permanent cure, and the latter with a fair hope of an increased length of life. In both cases the operative removal can be carried out without danger, without mutilation and without any fear that a fistulous and leaking wound will be left behind. But this promising result depends absolutely upon the manner in which the tumor has been treated by the medical man prior to the operation. If cystitis has been induced—and it often is by injudicious zeal—that is to say, if the third period of its existence has been artificially hastened, the patient's chance of a sound and speedy recovery after operation is greatly lessened, nay, more, his chances of a speedy recurrence is greatly increased.

Let us consider, then, how cystitis influences the result of such an operation. When cystitis complicates a benign tumor, slight one-sided pyelitis is often also induced; for these growths are mostly situated over or around the urethral orifice, and they obstruct and dilate the urethral canal, which becomes readily inflamed by contiguity. Moreover, the wound left by the ablation heals slowly and sluggishly, and the hemorrhage may continue for days after it should have ceased. The increased vascularity of the mucous membrane around the site of the growth fosters any tendency to recurrence of the tumor. The suprapubic or perineal wound obstinately refuses to close. When cystitis has appeared in a bladder affected with succulent epithelioma, the pabulum of blood brought to the tumor, and therefore the rate of progress of the growth, is increased tenfold. The inflammatory wave attaches the movable and previously healthy base of the tumor to the muscular wall, and the latter becomes rapidly infiltrated. The operation wound probably will never heal, but will become more or less quickly implicated. It therefore behooves us in dealing with a case of symptomless intermittent hæmaturia to be very chary in the use of the catheter or sound. If it is considered necessary to employ the latter, let it be manipulated with the utmost care. Do not attempt to separate or scrape off a piece of growth for examination, for in nearly every case the most gentle sounding will increase the hemorrhage, and such roughness as this will change a controllable bleeding into a profuse and persistent loss, besides inducing cystitis. As regards washing out the bladder in order to arrest an alarming hemorrhage or to remove a solid mass of blood clot which is causing retention, let the instruments be aseptic and the water you employ sterile. Septicity introduced brings disaster on your patient and discredit on yourself.

Treatment.—Your treatment will be mainly directed toward arresting the hæmaturia in the second stage, and in the later period to relieving the pain and irritability of the bladder by means of sedatives. In the earlier attacks of bleeding, any hæmostatic will usually suffice—gallic acid, ergot, alum, iron, combined in every case with opium, may be tried. When the hemorrhage has once become established, it is often most rebellious. In some cases it is so furious that nothing short of cystotomy and removal of the surface of the growth arrests it. Presuming you are dealing with a vesical growth, the advice you tender to your patient concerning operative interference will be controlled mainly by the presence or absence of cystitis, and by the condition of the wall of the bladder as felt through the rectum or vagina. Should any dense infiltrated patch be felt in the vesical muscle wall, operative interference for the ablation of the growth will be perfectly useless. All that can be done in these cases, I believe, is to attempt to relieve the torture of micturition by perineal or suprapubic drainage. Even this, I regret to say, is insufficient to alleviate the agonizing spasmodic pain with which some cases are afflicted. If no infiltration be felt and no cystitis be present, the sooner the patient is operated upon the better.

This patient, aged 54, is an excellent example of what may be done in succulent epithelioma, even when the strength is exhausted by bleeding and the growth is of large size. He was brought to the hospital three weeks ago by my late dresser, Mr. C. A. Harrison. He was breathless from bronchitis and emphysema, debilitated and blanched by profuse and long-continued hemorrhage. You saw me remove a growth from the right side of the base of the bladder through a suprapubic incision. The growth fills this 6-ounce graduated glass. Within a week the tube was removed, and now the wound is dry and almost healed. All his water is passed naturally, and I can safely assure him that he will continue well for some months. The operation was a very simple procedure, as it always is in suitable cases. I do not use either the Trendelenburg position or a rectal bag, for neither are necessary if cystitis has not supervened. A 2-inch suprapubic median incision, starting from the pubes, is made, the recti are separated, and the bladder, which has been previously distended, is hooked up, and a 1-inch vertical incision is made into the viscus. Two blunt button hooks are then inserted, and the dresser holds the ends of the wound taut by these, while a caisson[1] is slipped into the bladder and directed toward the place where the growth has previously been seen, by means of the cystoscope, to be placed. The open end of the caisson is rested on the growth, and the water is sucked out. A head lamp or mirror throws light upon the tumor, which is then twisted off or torn away piecemeal by means of long catch forceps. When all the surface of the growth has been removed the base is attacked. It is either snipped out by means of scissors, or cut away with a lance-pointed knife. The hemorrhage is checked by firm pressure of a sponge dipped in a solution of iron, and double drain tubes are inserted. The bladder is now washed out through the tubes and the patient removed to bed. In three days' time the tubes are removed and in a week the patient is up. I do not remember a case in which the wound has not closed before the end of the third week. I do not always use the caisson. Sometimes I drag the growth to the opening in the bladder and dissect it off the wall. In women, after careful dilatation of the urethra, I employ the same maneuver. I sieze the growth with long narrow forceps, bring it to the opening of the urethra, and dissect it off the muscle wall, or twist it off its base. An operator should never forget that an incomplete removal is tantamount to an early recurrence, whether the tumor be benign or malignant.

Results.—I have operated thirty-two times with a definite object of removing tumors which I had diagnosed as being present. My first case proved a mistaken diagnosis, for the tumor was merely a small papillomatous-like tag coexisting with tuberculous disease. In another, a female case, I deemed it best to leave the tumor alone, but, probably with my increased experience and better methods of removal, I should not again hesitate to dissect a similar growth away. It proved to be a very dense epitheliomatous ulcer. On thirty occasions I have removed tumors. The perineal operation was performed three times, because the growth was near the urethral orifice, the female urethra was dilated in eight instances, and the suprapubic route was chosen nineteen times. I regret to have to chronicle two deaths as the direct result of the operation. Both patients were males, both were the subject of a small but pure villous papilloma. The operation was easy in both cases, but both cases died of suppression. Unknown to me, both had had epidemic influenza three or four days before I operated.

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[1] Author, Caisson Working in Bladder Surgery, British Medical Journal, November 19, 1892,p. 1111.

Nature of the Tumors.—The microscopy of growth removed by operation is so unsatisfactory that I should not like to say how many of the cases were purely benign ; probably twenty were benign growths.

Recurrences.—One carcinoma recurred three months after a very thorough removal, but then cystitis was present when I operated. He died. Four other cases have recurred and have been operated upon. All the cases, with the exception of the three cases I have mentioned, are living and in good bladder health. It is, however, too early to speak about "cure," for five years have not elapsed in any case, though one has already passed the fourth year in perfect health.

I shall again report, if possible, the condition of each in a later communication.

I attribute much of my success to a careful selection of favorable cases by means of the cystoscope, and here I would remark how very fully the character of that instrument has been vindicated by these results.

Not only have I only once cut into a bladder (my first case) to remove a tumor which did not exist, but I have been enabled to select, out of a hundred cases of vesical growth, those cases which repaid operative interference. Moreover, out of some hundreds of cases of obscure urinary disease, it has enabled me to select at least fifty cases of vesical growth the existence of which I should have been unable to pronounce with certainty without digital exploration. Much needless instrumentation and operation has thereby been avoided.

I may mention that I am much influenced, among other conditions, by the color of the tumor. If the tumor surface be translucent and of a pinkish hue and exhibits no signs of necrosis, I know that I am dealing at least with a growth in a favorable stage. The smoother the tumor the more I am inclined to suspect its deeper origin, for surface epitheliomata have a great tendency to produce a true villous surface. If the tumor is white or grayish white I invariably diagnose epithelioma. It is also extremely suspicious of malignancy to see a powdering of white phosphate of lime upon a tumor which has only lately declared itself.

I can assure you that the removal of a growth of the favorable type from the bladder is a simple and safe operation. That danger, if danger exists, lies in attacking carcinomata in their advanced stage or in ablating tumors of a benign type which have been long enough in existence to cause serious renal changes from backward pressure or which have been suffered to enter the period of cystitis either by neglect or by maltreatment. Finally, I urge upon you the necessity for regarding non-infiltrating tumors of the bladder in the same light which you are taught to look upon stone in the bladder. The sooner the operation is performed the better for the patient.—*British Med. Jour.*

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A LECTURE

ON ANTICHOLERAIC INOCULATION,

Delivered, by Invitation, at the Laboratories of the Royal Colleges, Victoria Embankment. By W. M. HAFFKINE, Member of the Institut Pasteur.

Microbic Vaccines.—The discovery of the mutability of the character of microbes, and of their capacity to be artificially transformed into vaccines of fixed and determinate nature, is certainly the greatest step which has been accomplished in medical science since the first study of pathogenic microbes was made. The task presented to investigators afterward was that of recovering the germs of contagion which were recognized as being the cause of the disease and to elaborate protective substances from them, and to establish hygienic habits of daily life necessary for the preservation of living beings from the diseases which lie in wait for them.

M. Pasteur, after having discovered the first principles of the method by experiments on "fowl cholera," developed them greatly by his studies on anthrax; he then turned his attention to hydrophobia, which, being a disease common to both man and animals, was an appropriate one for applying to the treatment of human diseases the methods previously used for animals.

Artificial Intensification of Virus.—The experience acquired in the prevention of hydrophobia by preventive inoculation—the first human disease treated according to the new method—gave observers a perfectly clear plan which they might follow for other human diseases. It was shown that in order to be successful it was necessary to prepare a series of virus, gradually increasing in strength until they reached a fixed degree of virulence greater than that of the ordinary virus, which, when used, should permit the organism to become accustomed to a poison more virulent than that which it has to fight against at the moment when infection takes place. The *traitement intensif* of hydrophobia, based upon virus of a maximum strength, has inaugurated the method, and has shown the true *rôle* of the virus kept in a fixed state of exaltation by appropriate experiments.

The acquisition of an exalted virus and the establishment of a method suitable to keep it in a fixed state is, then, the starting point and the final aim in the research of a vaccine, for we repeat that it is necessary gradually to accustom the organism under treatment to this fixed virus. It is known that this task may be accomplished by the passing of the infectious organism through a series of animals, and that the microbe acquires the maximum of its contagious power by cultivating it through a long series of living beings.

The Problem as Applied to Cholera.—In the case of cholera the first attempts toward this end were made by trying to infect animals through the digestive canal. In this way the culture of the microbe took place in a medium occupied by a number of foreign microbes, which from the first rendered the means employed uncertain. The result of the introduction of a microbe into a medium already occupied by other microbes depends upon the nature of the latter, and their presence renders its development sometimes more easy, sometimes, on the contrary, impossible. Besides, the purification of the microbe by artificial culture, made with virus transmitted through two animals, is a source of weakness which counterbalances the exaltation.

Previous Attempts at Solution.—This explains how MM. Pfeiffer and Nocht, in seeking to strengthen the cholera microbe by passing it alternately through animals and cultures, have not been able to obtain a microbe capable of overcoming the natural resistance of birds; and this is the reason why M. Roux and myself, in trying to transfer the intestinal contents from one animal directly to another, according to the method used by Gamaleïa, have seen our series interrupted after the third or fourth transference.

The idea which M. Gamaleïa had in 1888 of cultivating the microbe in the thoracic cavity of animals gave rise to much hope, and at one time the task might be considered as accomplished. Unhappily, this method, perfectly applicable to the microbe which M. Gamaleïa called "vibrio Metschnikovi," was found defective when it was applied to the Asiatic cholera microbe, as we have seen in a series of trials made in this direction by M. Roux and myself. The idea of M. Hueppe, which dates from the same time, of producing the infection of animals by the introduction of the cholera microbe into the peritoneal cavity, has been since taken up again by M. Pfeiffer, who proved that in the case of the cholera microbe a phenomenon was produced which is analogous to that seen in a series of others, as in diphtheria or of tetanus, which are characterized by a local development of the animal organism without an invasion of the blood or of the parenchymatous organs.

This phenomenon consists in that the infectious agent itself disappears in the animal killed by the microbe, and therefore, even were it possible to again find the remains of the culture injected and to transfer them to a second animal, the latter would not retain any further trace of the microbes, and the series would be interrupted.

The Author's Method: Experiments on Animals.—In the research that I have done at the Pasteur Institute on vaccination against Asiatic cholera I have chosen for my starting point the inoculation of the animal into the peritoneal cavity. Starting from this point I have worked out a method which permits the culture of the microbe in the animal organism in a state of purity during indefinite generations, the exaltation of it to a well-determined maximum of strength, and keeping it at the same degree of virulence for an unlimited period of time.

This method is illustrated by three series of experiments, which were the subject of our publication in the *Comptes Rendus De la Société de Biologie* of Paris, and which are:

1. Giving the first animal a dose larger than the fatal dose, and killing this animal in a sufficiently short space of time to be able to find the more resisting microbes.

2. To expose the exudation taken from the peritoneal cavity to the air for several hours.

3. Then to transfer this exudation to the next animal, of large or small size, according to the concentration of the exudation.

In the hands of a number of other experimenters, this method has given the same results and showed a perfect consistency.

The properties of the virus which is obtained in this manner of cultivation are as follows: Upon intraperitoneal inoculation it kills guinea-pigs, regularly, in the space of about eight hours, and the fatal dose for this animal is reduced to about twenty times less than that which it would have been necessary to take for the microbe with which I started. The same inoculation kills rabbits and pigeons with a dose which would hâve been perfectly harmless at the beginning of the experiments. It kills guinea-pigs by intramuscular inoculation.

The subcutaneous inoculation brings about the formation of a large œdema, which tends toward sequestration of a whole part of the cutaneous tissues and to the formation of a wide open wound which is cured in from two to three weeks.

The basis of anticholeraic vaccination is founded on the virus obtained in the manner we have just described.

This virus injected under the skin of a healthy animal gives it, after several days, immunity from all choleraic contamination, in whatever manner this may arise; that is to say, if an animal that has been thus treated be taken, and an attempt made to infect it either by the digestive canal, by neutralization of the gastric juice and the injection of opium into the peritoneum, or by the introduction of the microbe. into the intestines by the method of Nicati and Rietsch, or by intramuscular inoculation, or, finally, by intraperitoneal injection, the most terrible of all, it resists, whilst the control animals succumb.

Anticholeraic vaccination of animals in this manner is then definitively established. But the operation described cannot be, such as it is, applied to man. The wound following on the subcutaneous inoculation is terrible to look at, and, in all probability, extremely painful. Besides, although it does not in itself present any danger to the health of the individual, it exposes him to all the complications inseparable from an open wound.

This power of producing necrosis of the cutaneous tissues has been removed from the exalted vaccine by cultivating it in a temperature of 39° C., and in an atmosphere constantly aërated. Under these conditions the first generations of the cholera microbe would die rapidly, in an interval of two to three days, and therefore care must be taken to sow them again in new media immediately before death, and after a series of generations of this kind a culture is obtained which, if injected under the skin of animals, even in exaggerated doses, only produces a passing œdema, and prepares the organism in such a manner that the injection of exalted virus, the definitive vaccine, only produces a local reaction of the slightest description.

Vaccination by Fixed Vaccines.—The method of vaccination thus worked out comprises then two vaccines—a mild vaccine, obtained by weakening the fixed virus; and a strengthened vaccine, which is presented by the virus itself. It is easy to understand why to obtain the weakened vaccine we do use an ordinary virus, but a virus the nature of which has been previously fixed in the laboratory. It is because the virus, such as is found in the natural state, especially when it has a saphrophytic phase of development, presents such pathogenic differences that there is no certainty in its application. Respecting this we need only recall the story of variolization, and the great danger that an individual incurred when the infectious substance from a lightly-attacked subject was transferred to him. The mildness or the gravity of an infection does not depend only on the veritable strength of the contagious substance, but upon the resistance of the individual from whom it is taken. Thus it happened that in taking for vaccine lymph from a subject lightly affected a very weak substance was sometimes produced, which was incapable of producing a protective action ; and sometimes a lymph of such strength that it killed less resistant individuals. The great benefit of Jenner's discovery lay in that it precisely indicated a substance fixed by passages through animals and of a virulence below that which is fatal to the human organism. Another example is given in the method of Toussaint of vaccination against anthrax, the first of its kind, which has been obliged to make way for the method of M. Pasteur, for the sole reason that the latter, based upon virus of a fixed nature, presented an absolute certainty in its results which was wanting in the other. Finally, in the history of cholera itself, I may recall the attempt made in 1885 by Dr. Ferrán, of Barceloná, who, with the object of preserving the population of the Peninsula from the epidemic of cholera, made injections in his patients of the ordinary virus taken from dead bodies and cultivated in the laboratory. The statistics of the results obtained by this means showed such uncertainty that no one dared to recommend this operation to his country in spite of the very numerous trials made in Spain.

The possibility of treating the animal organism by vaccines of an absolutely fixed nature, prepared by means of special operations, constitutes, on the contrary, the basis of the Pasteurian method, and here lies the whole secret and the sole guaranty of the success of its application.

Application of the Method to Man.—The method of anticholeraic vaccination worked out by experiments on guinea-pigs was tried upon rabbits and pigeons before it was applied to men. These animals were chosen in order to have subjects very differently organized, and in order to be able to generalize the conclusions, and to be able to extend them to the human organism.

The result obtained on all these animals being absolutely the same, it was decided to apply the operation to man.

The symptoms produced by this operation have been described in several scientific magazines. The method has been tried at Paris, at Cherbourg, and at Moscow, on about fifty persons of both sexes, between the ages of 19 and 68, of French, Swiss, Russian, English, and American nationality.

In every case the method has shown itself absolutely harmless to health, and the symptoms that it evoked were a rise of temperature, a local sensitiveness at the place of inoculation, and the formation of a transitory œdema at the same place. The first sensations are felt about two or three hours after inoculation ; fever and general indisposition disappear after twenty-four to thirty-six hours; the sensitiveness and œdema last, gradually dying away in from three to four days. The symptoms following the second inoculation were generally rather more marked, but of shorter duration. The whole recalls the sensation of a bad cold in the head, lasting about one or two days.

The microbes introduced under the skin do not propagate, but after a certain time they die and disappear. It is the substances which they contain, and which are set free when they die, that act upon the animal organism and confer immunity upon it. It is found that the same result can be obtained if the microbe be killed before inoculation, and if their dead bodies only be injected. Thus I have been able to prepare vaccines preserved in weak solutions of carbolic acid. In this the microbes die at the end of several hours, and the vaccine so prepared has been found still efficacious six months after its preparation. It is evident that there is much advantage in this state of preservation of the microbes. They can be used by persons having no bacteriological training, and the absence of every living organism makes them perfectly safe. The carbolic acid that they contain preserves them against any invasion of other microbes. Finally, as they can be kept for several months, their preparation can be entrusted to a central laboratory, whence the vaccine *ampoules* can be sent out to operators. But it may be presumed that immunity given by these preserved vaccines *will not equal in persistency that produced by living ones*, and as the method is not yet backed up by established statistics, it is better that vaccinations should be done as much as possible with living virus, so as to obtain the most conclusive results.

As to the length of time that immunity produced by living vaccines lasts, we have not yet at the laboratory animals that have been inoculated at a very distant date; those upon which we experimented dated from, at most, four months and a-half. At the end of this time their immunity was found to be still perfect, and we do not despair of its lasting much longer yet.

Harmlessness of the Method.—The inoculations upon man, added to the hundreds of experiments that we have made upon animals, testify to the perfect harmlessness of these operations, and there is no difficulty in proving their efficacy by experiment, no matter on what species of animal. We have taken twelve guinea-pigs, and vaccinated six of them with vaccines preserved in carbolic acid since September 8th last. Yesterday, at 5 o'clock, six days after the first vaccination, we injected into the peritoneal cavity of all the non-vaccinated animals a fatal dose of virus, and into the vaccinated animals we injected a double dose. The six vaccinated animals are perfectly well, while of the others two have already died of choleraic poisoning, two are very ill, and the others will certainly soon become so. But it is evident that I cannot perform a like experiment on man (but, however, this would be the only means of being able to give definite experimental demonstration).

The Argument from Animals to Man.—This being the case, evidently the objection might be raised that although this vaccination renders guinea-pigs, rabbits, and pigeons very resistant, yet all the same it might be possible that man might escape this law. That, indeed, is not impossible, and—we lay much stress upon the fact—it is by experiment that our method must be proved to be true. It is by direct application and use that we must show ourselves and others the true value of the means extolled. Yet after the experience already acquired we think that there is little probability of a negative result. The difference between a mammal, like the rabbit or guinea-pig and a bird like the pigeon, from an anatomical and physiological point of view is much greater than between rodents and man ; hence, when the same law is proved to exist among animals so different, there is little probability that man is not also subject to it. The symptoms following on inoculation of our vaccines are strictly analogous in all the animals experimented on, including man. The same changes of temperature take place in all the animals. In the animals which have been rendered resistant against cholera, immunity is made evident by the fact that every fresh subcutaneous inoculation, made even with weakened virus, induces a rise of temperature more considerable than the preceding. We hope that the parallel will extend to this modification of the organism which produces the resistance against an infectious agent. But the sole and definitive confirmation of this hope can be obtained only by the application of the method where cholera makes ravages in the human race.

SELECTIONS.

DIETETICS IN DISEASES OF THE STOMACH.[1]

By MAX EINHORN, M.D., Physician to the German Dispensary, and Instructor in Clinical Medicine at the New York Post-Graduate Medical School, New York.

Dietetics, or the doctrine of nourishment, has taken an important part in the treatment of the sick ever since the time of Hippocrates; but although the dietetics of the diseases accompanied by fever have not changed much in the principal points, new rules and principles regarding nutrition in chronic diseases have been introduced of late. This has reference especially to diseases of the stomach, that branch of internal medicine which in the last two decades has shown so much unlooked for progress. As the therapeusis of diseases of the stomach has to deal with dietetics principally, I thought it would be of interest to discuss this subject before you. It may be expedient to divide this subject into three parts:

1. General rules of dietetics in diseases of the stomach.
2. Dietetics in acute diseases of the stomach.
3. Dietetics in chronic diseases of the stomach.

1. *General Rules of Dietetics in Diseases of the Stomach.*—Within the past two years important facts have been discovered which are of the greatest value in the treatment of diseases of the stomach, and the influence of which can be perceived like a red thread through the whole chapter of dietetics. It has been shown by von Noorden[2] and others that emaciation in chronic diseases of the stomach is caused in the largest majority of cases—if, perhaps, not in all—not by specific poisons circulating in the organism, but by a smaller amount of food being taken. On the other hand, one might expect, judging from the universal law existing in the plant and animal kingdom of vicariousness or replacement in case of inability of the work of one organ by another similar one, that in grave disturbances of the digestive functions of the stomach, the intestines would do the work instead. This has been experimentally, as well as clinically, proven in the most

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[1] Read before the Medical Society of the County of New York, May 22, 1893.

[2] Von Noorden: Berliner Klinik, Heft. 55.

infallible way. Several authors (Leube, Ewald, von Noorden) have observed that in the cases of atrophy of the mucous membrane of the stomach, in which, as you all know, the gastric secretion has entirely ceased, the patients can maintain their usual weight. From my paper on achylia gastrica[1] it is clearly seen that the patients can do very well without gastric secretion ; under a proper regimen they can even gain in weight, and live long without any discomfort whatever. That means that even after the loss of the entire chemical action of the stomach, the gut is completely able to replace the function of the stomach.

These two facts, 1, that the emaciation in chronic diseases of the stomach is caused by too small a quantity of food ; 2, that even in grave lesions of the gastric functions the gut appears to perform vicariously the digestive work in a complete way, are of vital importance for the doctrine of dietetics. For it is seen at a glance that the main object of nutrition of the sick consists in giving them sufficient quantities of food. Before proceeding it is necessary to briefly review the normal physiological nutrition of man. We perceive quickly that there is a great variety in the food of healthy persons with regard to the quantity as well as to the different food substances. Nevertheless, they all contain the three groups of food-stuffs : Albumin, carbohydrates, and fats. Thus, for instance, vegetarians live and thrive principally on vegetables the Esquimos, on the other hand, almost exclusively on animal diet. The golden path, however, lies intermediate, and all authors (Voit, Pettenkofer, Hoffmann, Forster, and Gruber) recommend a combination of animal and vegetable food. R. Virchow, likewise, is of the same opinion, and expresses himself regarding this question as follows : " Although the Kirghez and the Esquimos show us that health and life can exist through many generations on an exclusively nitrogenous diet—other tribes (Hindoos) live principally on non-nitrogenous food —still history shows us that the highest attainments of the human race have emanated from nations who have lived and live on mixed diet." A mixed diet, taken partly from the vegetable and partly from the animal kingdom, is the most suitable form of nourishment. We obtain the greatest amount of carbohydrates from the vegetable kingdom, while a great deal of the albumin is derived from animal food. The relation between animal and plant albumin, according to Munk and Ufflemann,[2] should not be less than three to seven. As regards the quantity of food, according to the same authors, an adult doing a medium amount of work requires daily one hundred and eighteen grammes albumin, fifty-six grammes fat, and five hundred grammes carbohydrates.

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[1] Max Einhorn, Medical Record, 1892.

[2] Munk and Ufflemann : Die Ernährung des gesunden und kranken Menschen. Wien, 1887.

Food only in small portions serves the purpose of reconstructing tissue waste; in its largest part, however, it is used for generating the heat requisite for the maintenance of life. For that reason it is customary to speak of the necessary amount of heat-units during twenty-four hours instead of the quantity of food. By "heat-unit" is meant, as is well known, that quantity of heat which is required to raise the temperature of one gramme of water one degree Celsius. "Great heat-unit" means the amount of heat required for warming one thousand grammes of water one degree Celsius. Each kind of food is ultimately oxidized in the body to its end-products, and is in greatest part exhaled in the form of carbonic acid; the more carbon atoms food-stuff contains the more heat-units it will generate. In speaking of the heat value of food, the great heat-units are used, the term "great," however, being omitted. Thus one gramme of albumin generates 4.1, one gramme of fat 9.3, and one gramme of carbohydrate 4.1 heat units. If we know the quantity of nourishment taken, the amount of the introduced heat-units is easily determined by multiplying the different food-stuffs by the above given figures. The daily amount of heat generated by the body, or necessary for the maintenance of the same, has been approximately estimated at 2,500 heat-units.[1] The heat value of the food taken by an average working person amounts, according to von Noorden,[2] to about forty heat-units when working, and when resting to about thirty-four heat-units per kilo a day. According to K. Vierordt[3] an adult takes in form of food a daily average of 120 gm. albumin, 90 gm. fat, 330 gm. carbohydrate (the relation of the nitrogenous food-stuffs to the non-nitrogenous being 1 to 4), and 2,818 gm. of water. The above mentioned figures differ from those given by F. Hirschfeld. This author demands 80 gm. of albumin as the lowest amount contained in a sufficient diet. Victuals are composed mostly of all the three food groups (albumin, carbohydrate, fat) and water, and contain in minute amounts the inorganic salts found in the body.

In order to have a correct idea of my own about the quantity of nourishment taken daily, I have weighed and recorded for two successive days all the nourishment and drinks taken by my wife and myself. The record showed that I had taken during the first test-day

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[1] Koenig: Die Menschlichen Nahrungs—und Genussmittel. Berlin. 1883. p. 53.

[2] Von Noorden: Berliner Klinik, Heft. 55.

[3] K. Vierordt: Grundriss der Physiologie des Menschen. 1887. 3. Auflage. pp. 288, 289.

63.8 of albumin, 47.3 of fat, and 168.8 of carbohydrate; the total number of heat units was 1,402.3. During the second test-day the corresponding figures were somewhat higher; the quantity of albumin was 79.39, fat 54.3, carbohydrate 263.9; the total of heat-units equaled 1,912.5.

The average figure of heat-units per day is $\frac{1402+1912.5}{2}=1,657.4$. As my weight is 52 kilos., the amount of heat introduced into the system per kilo. and per day is $\frac{1657.4}{52}=32.2$.

My wife partook during the first test-day 103.19 of albumin, 44.99 of fat, and 204.64 of carbohydrate. The total of heat-units was 1,660.5. On the succeeding day the figures were as follows: 64.03 of albumin, 31.14 of fat, 174.92 of carbohydrate. The total of heat-units was 1,269.29. The average figure of heat-units per day is $\frac{1660.50+1,269.29}{2}$ $=1,464.89$.

As my wife weighs 55 kilos. the amount of heat-units per kilo and per day is therefore $\frac{1464.89}{55}=26.63$.

My wife, as well as myself, hold our weight, live regularly, and the food taken is not subjected to very great differences; therefore, the figures mentioned may be considered as our average figures. These figures, however, are far smaller than the average given by all authors. This shows what great differences there are in the quantity of food taken by people in their normal condition in order to make up the daily loss. The one maintains his balance at a rate of 26-heat-units per kilo. a day; the other may lose in weight at 30 heat-units per kilo. a day. The scale is the best guide as to whether a certain amount of food is sufficient or not. It shows quickly and with certainty whether the organism maintains its balance or not.

After this lengthy dissertation on the diet in health let us return to the sick.

As people with disturbances of the stomach have to replace for their existence no smaller losses than under physiological conditions, they will therefore need: 1. Just as large amounts. 2. The same kinds of food stuffs as described for the normal state. The only difference possible will have reference to the selection of the various articles of diet and to their form and special preparation.

Thus the question arises, What qualities should the food of stomach patients possess?

In the treatment of a diseased organ one can often make use of two methods. One consists in sparing the diseased organ and giving it perfect rest, the other consists in strengthening the same by methodical adaptation for more work and practice. Both principles are in fact realized in the treatment of diseases of the stomach. The first method is ordinarily applied in acute diseases and only very seldom (and then only for a short time) in chronic affections of the stomach. In these latter the second principle as a rule is used. The stomach can be spared, firstly, by not introducing into it any food whatever (greatest degree of saving or rest). Secondly, by administering food substances which, during their stay in the stomach, do not impose much work upon this organ, and do not greatly irritate it. Here the main object will be to give the patient easily digestible food. In turning from the saving principle to that of strengthening the organ by methodical adaptation for work, it will be quite natural to change the diet, not suddenly, but gradually, into such as requires more work on the part of the stomach for its digestion. It is therefore absolutely necessary to have an exact table of the digestibility of different foods. In prescribing or changing a diet we shall have to act according to it. Such a scale has been arranged by different authors. The main sign of digestibility was gauged by the rapidity with which the various food stuffs passed out of the stomach into the intestines. Beaumont in many trials on his patient with the gastric fistula determined the length of time the different victuals remained in the stomach and constructed a scale according to the figures obtained. On the same principle, but more reliable and of greater value, is the scale constructed by Leube, according to the results obtained by emptying the stomach by means of a tube, after different kinds of food had been taken. We think it advisable and useful here to give Leube's scale:

1. *Diet.*—Bouillon, Leube-Rosenthal's meat solution, milk, soft raw egg, zweiback, English cakes (biscuits containing no sugar), water, natural acidulous waters (Apollinaris, Kronthaler, Seltzer, etc.).

2. *Diet.*—Boiled calf's brain, boiled calf's sweetbread, boiled chicken (young without the skin), boiled pigeon, boiled calves' feet, tapioca pap boiled in milk, beaten white of egg.

3. *Diet.*—Raw beef (chopped very fine), raw ham (chopped very fine), beefsteak (superficially fried in freshest butter), finely scraped tenderloin of beef, mashed potatoes, white bread (stale), coffee with milk, tea with milk.

4. *Diet.*—Fried chicken, fried squab, roast venison, guinea-hen, roast beef (cold), roast veal (leg, saddle), boiled pike, macaroni, rice pap, finely chopped spinach, asparagus, stewed apples.

These tables, however, have not as yet on the one hand been fully verified on healthy individuals or found always alike (giving the same results): on the other hand such experiments only show what food remains in the stomach the shortest time. This would perhaps give eason for presuming what food may be easily digested as far as the stomach is concerned, but not what is easier digested as a whole, *i.e.*, made use of for the economy of the body with the smallest amount of work. The digestibility of food substances depends firstly upon their shape and quality; secondly, upon their percentage of convertible material.

"*Corpora non agunt nisi fluida*" is an old, well known axiom. Following this law one could arrange the following scale of digestibility, which is constructed according to the different physical conditions of the food:

1. In the first place, food in liquid form: *a*, Liquid at ordinary temperature—milk, meat juice, beef-tea, bouillon, peptone or sarcopeptone dissolved in water, bread-water,[1] strained barley, oatmeal, rice-water, strained oyster-soup, egg albumin-water; *b*, liquid at the body temperature—jellies, fruit-jelly, calf's-foot jelly, ice-cream, water-ice.

2. Pulpy form: The food is mechanically converted into very minute particles and well mixed in liquid—pap soups (barley, oatmeal, farina, rice, sago), egg in bouillon, Leube's meat solution, pulverized meat, pulverized crackers in milk, water or bouillon, buttermilk, kumyss, cream, butter.

3. Food which by slight trituration in fluids separates into minute particles: White bread in milk or water, the tips of well boiled asparagus, carrots, mashed potatoes, baked potatoes, the yolk of hard-boiled eggs, oysters (raw).

4 Solid food: White bread, rye bread, meat, hard-boiled eggs, fish, cheese.

5. Substances not easily digested: Meat with tough fiber, lobster, sausages and Swiss cheese on account of their solidity; all substances containing much cellulose, principally when eaten raw; cold slaw, all salads, cucumbers, pickles, raw fruit, apples, pears, pineapple; fruit which contains much acid, therefore all unripe fruit; strawberries; substances containing much sulphur and forming gases in the intestines, all kinds of cabbage, principally white cabbage, beans.

This theoretically constructed scale of the digestibility of food is, at the same time, in the main points, similar to the one which has long stood the test of empiricism and which I ordinarily apply in my pratcice.

After these general explanations we return to our special subject.

Dietetics in Acute Diseases of the Stomach.—The principle of rest here occupies the first place. In acute gastric catarrh one gives, during the first two or three days, in which, as a rule, there is a total loss of appetite, only very little nourishment in liquid form, containing principally amylacea, barley or oatmeal soup, bouillon, weak tea, water. As a rule, one must not force a patient to take food during the first or even during the second day of sickness. The anorexia in these conditions is a wise arrangement made by nature in order to give the stomach rest. If there is thirst, beverages may be taken in small quantities, and must be neither very cold nor very warm. As soon as the appetite reappears one may give some toasted bread or zweiback, milk, soft boiled eggs or oysters, permitting after a while small quantities of bread and meat, and then passing slowly to the ordinary diet.

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[1] Bread-water. Stale bread is cut into slices and put in water at temperature of room for from two to three hours, then the water is strained.

Ulcer of the Stomach.—During the rest cure of von Ziemssen-Leube give liquid diet, consisting principally of milk, for two or three weeks. As is well known, Cruveilhier[1] first recommended milk for the purpose, and even now there are some physicians who limit themselves to milk alone. As a rule, however, it is appropriate to allow, besides milk, milk in combination with barley, oatmeal, or rice-water. In addition to this, the different peptone preparations are here in place. I administer Rudisch's sarcopeptone, manufactured in this country, on account of its being palatable and highly nourishing. (The Rudisch's sarcopeptone contains forty per cent. of nitrogenous substances, including twenty per cent. of peptones.)

One may give most appropriately every three hours one to two cupfuls of milk with or without the addition of the above-named decoctions (four times daily) and sarcopeptone (twice daily). The patient must not drink these fluids, but eat them with a spoon. In case of hemorrhage of the stomach during the first three or four days, it is not permitted to give any food whatever by the mouth ; instead, the patient must be fed by the rectum. Ewald has proven that the large intestine has the ability of digesting and absorbing albuminates even without special previous preparation ; therefore the following may be given as a nutritive enema.

1. Three to five eggs are mixed with 150 c.c. of sugar water (30.0 of grape-sugar dissolved in 150 c.c. of water), a small quantity of common table-salt is added, and the whole mixture well beaten ; one may add also a small quantity of starch solution or mucilage.
2. One-half pint of milk + 2 eggs + 50 gr. of grape-sugar.
3. One-half tablespoonful of Rudisch's sarcopeptone dissolved in a cupful of water.

The food enemata have to be given three or four times daily. It is necessary that the fluid should be at the temperature of the blood, and that it should be injected by means of a fountain syringe and a soft rubber rectal tube. Each time before giving a nourishing enema a cleansing enema of 250 c.c. of lukewarm water has to be administered, in order thoroughly to cleanse the large intestine and make it more fit for absorption. In case of thirst the patient is allowed to take small pieces of ice into the mouth from time to time. Three days after the disappearance of blood one slowly and cautiously begins the liquid diet.

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[1] Anatomie Pathol., 1829–35.

Dietetics in Chronic Affections of the Stomach.—Whereas, in acute diseases of the stomach, we paid most attention to giving rest to the organ—for here even an insufficient nutrition and the loss of several pounds of bodily weight is not of much importance, as the quickly recuperating organism replaces the losses caused during the sickness by taking increased quantities of food—in the chronic affections it is of utmost and vital importance to see that sufficient quantities of food are taken.

The greatest number of stomach patients consulting the physician after the disease has been progressing quite a while have lost more or less weight. The principal reason for this lies in the fact that the body has received too small a quantity of nourishment in order to replace the waste.

The ordinarily insufficient appetite, the early appearance of a feeling of satiation, the pain often appearing after meals, and less frequently vomiting, are the principal factors of subnutrition.

At this point it becomes necessary to divide the patients with stomach troubles into two large classes :

1. Into such with organic lesions of the stomach. 2. Into such with functional disturbances.

The first class comprises, *a*, the malignant diseases of the stomach itself or its orifices (carcinoma ventriculi, cardiæ, pylori) ; *b*, cicatricial strictures of the cardia or pylorus ; *c*, absence of secretory work of the stomach ; achylia gastrica.

In this whole first class, with the only exception of group *c*, which lies, so to speak, between the first and second class, we are unable to accomplish much either by treatment or dietetics. In existing strictures of the cardia or pylorus one will be obliged to seek surgical aid. Even in cancer of the stomach-wall the resection of the affected part is advisable whenever the operation is possible. I cannot abstain from calling attention at this place to the splendid results of the recent stomach surgery, which of late has been frequently practiced in our own country (F. Lange, N. Senn, R. Abbe, Willy Meyer, McBurney, Weir, and others). In carcinomatous strictures a new passage can be established, either for bringing food into the stomach, by a gastric fistula, or for allowing it to pass into the intestines, by gastroenterostomy. In this way one succeeds at least in temporarily giving these unfortunate ones relief and in ameliorating their nutritive condition. In the cicatricial strictures one is entitled to promise to the patients, nowadays, perfect recovery by undergoing operative treatment. (At the stricture of the cardia a methodical dilatation of same with bougies may sometimes also suffice.) The pyloro-plastic (of Heincke-Mikulicz) and the cardiotomy or cardio-fissure (Abbe) belong to the most beautiful and blessful operations which have ever been practiced. After the operation the patients are enabled to eat everything, and to live without any trouble whatever, *i.e.*, they are perfectly cured.

Before the operations, or if such are unfeasible, one will administer light, very slightly irritating nourishment, and always endeavor to make the patient partake of a larger quantity of food. If there is obstinate and constant vomiting it is necessary to employ nutritive enemata.

Group *c*, achylia gastrica will be advantageously discussed in regard to diet under Class 2.

The second class of functional disturbances includes the largest number of all dyspeptics. Here stands uppermost chronic gastric catarrh, atony of the stomach, dilatation of the stomach, gastroptosis, superacidity with or without hypersecretion, nervous gastralgia, nervous dyspepsia, and as an intermediary between the first and second class, achylia gastrica.

It appears advisable to discuss first the whole class, and thereafter to give special rules for the different groups. Liquid food or partly predigested substances (as all peptone preparations) are not in place here. By making the stomach work too little, the weakened condition of this organ is retained and aggravated in time. We must always bear in mind the principle of strengthening the organ by means of appropriate work.

Delafield[1] is said to express himself in his lectures in the following way regarding the dietetics of the dyspeptic:

When a dyspeptic patient asks you the question, "What shall I eat?" reply, "Eat what you like." If he asks, "How much shall I eat?" say to him, "Eat as much as your appetite demands." If he still asks, "When shall I eat?" answer, "Eat when you are hungry."

Although I do not favor strict and severe dietetic rules, nevertheless I deem the above mentioned remarks as going too far. Unlike the normal healthy condition, in which instinct shows us the right measure to eat, neither too little nor too much, stomach patients very often have lost the feeling of self-regulation, and as a rule partake of too small quantities of food. (Only in a few cases of boulimia there may be an increased desire for food and in connection with it the quantity of food taken may sometimes be too large.) It is therefore necessary to instruct the patients to eat more or to give them exact figures of the quantity of food required. As this varies with every individual it is most practicable to let the patient weigh himself once a week and to see whether he keeps his weight. If the patient does not lose any it is the best sign that he takes sufficient nourishment. Besides we must remind patients to lead a regular life, to eat slowly (how many, especially in our country, sin against this natural law), and to chew well and triturate the food. One must avoid either extremely cold or extremely warm food. Too copious and too complicated meals must be strongly forbidden.

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[1] Cited from Kellog: Methods of Precision in Disorders of Digestion, 1893, p. 4.

I have made it a rule not to forbid anything except what is, according to my conviction, obnoxious in the given case. In this way the patients have a great variety in their food and run less risk of subnutrition. Likewise we need not change the number of meals nor the hours appointed unless there should be special indications for such a proceeding.

Among the laity, as well as often among medical men, there are prejudices against certain forms of food. Thus, for instance, until recently one forbade all kinds of fat, even butter, in all dyspeptic conditions. Fat, however, belongs to the group of food-stuffs which has the largest number of heat-units, and besides, is not bulky as a nourishment (butter). Undecomposed fat passes the stomach without molesting the same, and is digested in the small intestines. There is, therefore, no reason for forbidding butter, which should, on the contrary, be highly recommended. Fearing fermentative processes the partaking of bread and other food rich in carbohydrates is very often greatly limited, or even totally forbidden. Although it is true that the carbohydrates easily undergo fermentative processes, those cases, however, in which considerable fermentations exist in the stomach are quite rare, and as a rule are found only where there is considerable stagnation of food in the stomach. In these cases, to be certain, a diet consisting principally of animal albumin (meat) for a short period is very useful. By means of lavage of the stomach and other appropriate treatment one soon succeeds in checking the fermentative process, and one can then administer carbohydrates.

An adult, according to Koenig,[1] daily consumes one-third to threefourths kilo. of bread; fifty to sixty per cent. of the total food substances, and fifty to seventy-five per cent. of the carbohydrates are taken in the form of bread. This clearly shows the important part bread takes in diet. Its use is, therefore, as a rule advisable. It is ordinarily said that crust of bread, stale bread, and zwieback are easier to digest, on account of the starch contained in them being largely converted into dextrose. Although I am of the opinion that too fresh bread must be avoided, I, nevertheless, rarely find much difference in the digestibility of the crust or other parts of well-baked fine white bread, judging from experience gained from my own patients.

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[1] Koenig: Die Menschlichen Nahrungs und Genussmittel. Berlin 1883, p 430.

Articles of luxury (wine, beer, coffee, tea) are, as a rule, permissible. It is, however, necessary to give them in small amounts and in appropriate form. Strong liquors must be avoided, likewise all strong spices.

Appetizers, as a small amount of caviare, sardellen, or anchovies on a small slice of bread or cracker, taken one-quarter of an hour before the meal, are not only allowed but frequently directly commendable

In reference to the special rules for the different diseases of the second class, we shall have at times to reduce the quantity of meat taken in all conditions accompanied by a diminished secretion of HCl (gastritis chronica glandularis, atony — subacidity); on the other hand, the quantity of richly carbohydrate vegetable food will be increased Kumyss, matzoon, milk with cognac (7 to 10 c.c. of cognac to 200 or 250 c.c. of milk) may be taken with crackers either during or between meals.

In all the conditions with superacidity the quantity of albuminous food should be increased; here one may give a great deal of meat (venison included). In superacidity with hypersecretion frequent and small meals containing consistent food are most appropriate. If there is a feeling of hunger between meals, the white part of hard boiled eggs may be taken (as is well known albumin combines with acid and makes it, so to say, inert). The quantity of beverages must be greatly limited; most suitable in this instance are small quantities of vichy water. In dilatation of the stomach and in gastroptosis it is also advisable to give small and frequent meals, and to restrict the quantity of liquids taken. As a rule, milk and beer do not agree well in these cases. Small quantities of wine or imported dark beer or porter may be allowed.

In nervous dyspepsia and gastralgia our main object will be to systematically increase the quantity of food—here milk and its derivatives (kumyss, matzoon, bonnyclabber, buttermilk, cream) taken between meals play a great part (Weir Mitchell Treatment).

In achylia gastrica it is of utmost importance to give liquid or very well triturated (pulverized) food. For here the chemical action of the stomach has entirely ceased, and vegetable (on account of the albuminous membrane inclosing the starch granules) as well as animal food pass from the stomach unchanged, and not comminuted into small particles, into the intestines and irritate them, unless there has long been formed a sufficient adaptation for these conditions. Vegetable food, on account of its containing chiefly carbohydrates, will be predominant in the diet of this affection. Thus achylia gastrica, in reference to diet, stands midway between the first and second classes. It approximates the first class in so far that it necessitates a liquid or a mechanically minutely triturated or pulverized food, the second class in allowing a richly carbohydrate diet.

Some readers may miss in my paper exact bills of fare for chronic affections of the stomach. They have been omitted, as it is always necessary to individualize, especially in diet. We must guide ourselves more by the patients than by theoretical conclusions. Our main object must be to care for a sufficient nutrition. Only the above-given principal rules on diet must be observed, although at times even they have to be modified. In reference to this point Hippocrates said: "*Dandum aliquid tempori, aetati, regioni et consuetudini.*"

At present, with our more exact knowledge, we have come to appreciate this conclusion to a still greater degree.—*Boas.*

CREMATION AND ITS IMPORTANCE IN CHOLERA.

Abstract of Discussion at Stated Meeting of North-Western Medical and Surgical Society of New York, January 18, 1893.—By DR. ROBERT NEWMAN.

Dr. Newman had prepared an exhaustive paper on this subject, but in order to save time he omitted not only a carefully prepared bibliography, but also a number of points having a more or less important bearing on the subject.

Cremation, he said, is a very old method of disposing of the dead, and was the legal form of burial among the ancients, particularly in Greece and Rome. It was revived about twenty years ago, but made very little progress for about ten years. At the present time it is acknowledged by all unprejudiced and intelligent persons, and by scientists and sanitarians particularly, to be the best method of dis-

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From the Sanitarian for April, 1893.

posing of the dead. The present method of cremation consists in exposing the body in a retort to a temperature of about 2,000° F. No fire touches the body, but this heat is sufficient to make the corpse incandescent, and eventually to reduce it to a gray powder or ash weighing about four to six pounds. This is usually placed in terra cotta or marble urns suitably inscribed, and these urns may be kept by the relatives, deposited in a columbarium, or buried.

There are now fifteen crematories in this country, and between 1884 and 1892, 2,017 incinerations have taken place, 868 of this number being at New York. The Earle Memorial Crematory, at Troy, is the most costly in the country. Scattered over this country there are now thirty-two active cremation societies. From 1876 to 1887, in the nineteen crematories of Italy, 952 bodies were incinerated. There are nineteen cremation societies in Germany, but progress in this direction is slow, owing to the red tape in the government bureaus.

Dr. Petrie, of the Department of the Interior in Berlin, published a paper in which he claimed that cemeteries were perfectly safe if situated in proper soil and managed properly, but in the discussion on his paper it was shown that bacilli had been found in the earth three years after bodies had been buried. It has also been shown that in places where persons dying of yellow fever have been buried, bacilli identical with those found in the excretions of the yellow fever patients have been found only a few inches below the surface of the ground. The question of the effect of cemeteries on the health of the surrounding population assumes unusual importance in the neighborhood of large cities like New York, where there are no less than forty cemeteries.

Nothing can be found in the Bible which can be construed as opposed to cremation, and many clergymen now favor it. "He who can make men from the dust can bring them from ovens as well as from graves." The vital germ is no more destroyed by a few moments of intense heat than by a slow putrefaction for fifty years. Cremation is a religious rite among the Buddhists in Japan. The doctor then read a long list of names of eminent medical, clerical, and literary people who are in favor of cremation and said Professor Virchow had written a letter in answer to a request from the Cremation Society of Berlin for a medical expert opinion as follows:

"*To the Board of the Cremation Society, Berlin, December* 6, 1892:

"In answer to your kind letter of the beginning of October, in which the directory besought me to give a medical opinion about the usefulness of an introduction of facultative cremation, especially of such persons as have died from cholera or other epidemics, I declare in full maintenance of my opinion, given already in 1881 in the German Landtag, that I consider cremation very useful indeed with respect to economical as well as sanitary matters.

"In times of great epidemic diseases cremation should be considered an entire necessity. Strong heat without the act of burning has already proved, according to my experience, a good means by which the micro-organisms and contagious matters could be destroyed; of course genuine burning grants a far better security still.

"Big cities should try on this account to get their dead cremated, as mass-burials in grounds, which are near populous districts, every now and then revive the fear that some danger might not be excluded for the neighboring dwelling-places. RUDOLF VIRCHOW."

THE PROPAGATION OF CHOLERA.

Cholera comes to the shores of America as an epidemic by the natural ways of travel and commerce, either by travelers and immigrants or by baggage and merchandise, and if once introduced, spreads with great rapidity through excretions, clothing, bedding of the patients, and their dead bodies. Contagion is also carried by insects, water and earth.

Gatti, Grassi,[1] Koch, Simmonds, and others are authorities that insects and flies have carried cholera. They kept flies who had been seen sitting on cholera corpses at their laboratories, and after some time found the common bacilli.

Water in different ways may be dangerous. It is well known that anybody who drank water from the Elbe during the last epidemic in Hamburg was a suspect and was kept under observation. Biernacki[2] found in the well in Lublin, a suburb of Hamburg, cholera bacilli. That well was near a single house, in which in a few days twelve persons were seized with cholera. All these had been drinking from that well. His experiments were made very carefully, and he found the specific bacilli in large numbers two days after the beginning of his examinations.

Professor C. Fraenkel, of Magdeburg, found comma bacilli in the Rhine-Ruhr Canal, where a boat had been anchored whose owner had died of cholera, and where his excretions had been emptied.

Water in the hold of a vessel is also dangerous. In the hold of a boat on the Elbe Lubarsch found bacilli. On the same boat a child had died of cholera eight days previous.

Earth in graves through burials may cause a new epidemy.

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[1] Eulenburg, Real-Encyklopædie d. ges. Heilk., IV., p. 234.

[2] Deutsche Med. Wochensch , No. 42, 1892.

Sanitary Commissioner Dr. Doering in Berlin has shown that cholera bacilli are living in graves, and may be liberated by water, and thereby create the disease.

That graves are dangerous in this way can be proved by an incident in New York. During the cholera epidemic of 1866 some emigrants were buried in Ward's Island, and nearly at the same time a new epidemic appeared in the city opposite the island, in Ninety-third street, near Third avenue. Similar instances have been observed and have been mentioned before.

As a recapitulation, cholera is propagated by immigrants, merchandise, clothing, excretions, water, earth-corpses, and insects

HOW IS CHOLERA TO BE PREVENTED?

The best prevention is to keep cholera and bacilli out of the country, but if it comes to keep and treat it in quarantine.

If it is in quarantine, the best factor to prevent an epidemic and to destroy any contagious carrier is to follow Virchow's advice, *heat vel cremation!* The experiment is not new; has been done and always with success.

The following letter shows how heat, even in an imperfect manner, ended an epidemic of yellow fever:

204 WASHINGTON STREET,
BROOKLYN, N. Y., February 5, 1889.

DEAR SIR: I am most decidedly in favor of burning the dead, and cannot comprehend why so many object to it. The terrible diseases that from time to time cast communities of human beings into an abyss of grief would lose their hold in a short time if the victims were promptly consigned to the purifying action of the flames. What possible good can there be in burning clothes and furniture, if the infected flesh be allowed to remain in existence?

In 1868 there was a dreadful epidemic of yellow fever in Lima, Peru, as many as three hundred patients dying each day. From the beginning Dr. Le Plongeon, then practicing in that city, urged the cremation of the dead. It was impossible to bring the public mind to contemplate such a course. Finally an arrangement was made to keep large fires on the trenches filled with corpses, public attention not being drawn to the fact. At once the plague abated and soon died out.

ALICE D. LE PLONGEON.

Sir Spencer Wells recommends cremation in cholera in a communication to the *Times* and other articles. He says that graves sooner or later will renew cholera epidemics through the earth, water, or air.

Koch, F. Kuechenmeister, Blaschko,[1] Herzberg—in fact, all sanita-

[1] Deutsche Medizinal Zeitung, No. 60, 1892.

rians, recommend cremation, and during the last scare, in 1892, the New York quarantine authorities ordered the burning of clothing and bedding, and the cremation of cholera dead in Swinburne Island when New York and the whole United States were in great danger.

The care, hard work, and watchfulness of our health officer of the port of New York, under adverse circumstances, prevented the cholera from entering New York and America last Summer, and there is no doubt that it will be kept out of America during the next year. With the former experience and better precautionary measures, Dr. Jenkins will be even more prepared to keep the pestilence out of America.

If suspects arrive, they must be kept in quarantine under observation a reasonable time, which can be done without going to extremes. If cholera cases appear, they must be treated, and the ships and people disinfected, as also all excretions thoroughly disinfected. Dr. A. S. Ashmead, in *Science*, gives four rules to prevent cholera, as follows:

1. Let the drinking water be perfectly isolated—that is, keep the cholera germs from the drinking water.

2. Let the fæces and other discharges be disinfected with quicklime or common whitewash. This is, by the way, what Professor Koch recommended to the Central Sanitary Board of Japan.

3. Let the clothing be disinfected with dry heat, 212° Fahrenheit, and afterward with steam.

4. Finally, let the cholera corpse be cremated instead of buried.

It may be added that it is necessary to disinfect thoroughly the rooms, furniture, or ships wherein persons were sick with cholera, and sterilize drinking water and milk. A strict observation of all possible carriers of contagion must be maintained.

Vaccination has been practiced as a preventive of cholera. The experiments so far do not warrant a decision of its success.

In cases of danger the introduction of crematories, either stationary or portable, is necessary.

A German scientist proposes to disinfect the Elbe or other rivers and sewers by electricity. His argument is that an electric current will chemically change the water and thereby destroy cholera bacilli. This may be possible, but at present is only a theory.

It has been proven that cholera can be kept from entering America by proper means at the quarantine station. The question now arises, Is it better to continue a plan which has been successful, and will be successful again, or is it wise to suspend immigration, exposing thereby the whole Canada border line—a very convenient way for the introduction of cholera—and at the same time ruining the American commerce and the steamship companies, besides depriving the country of the capital and labor of desirable immigrants.

The question has not been settled by the Aacdemy of Medicine's Advisory Committee, nor proclamations, nor our Solons in Washington.

The laws of the different States vary very much respecting cremation, but with few exceptions it is not legalized in America; it is only tolerated. At present our Board of Health does not give a permit for cremation, but issues one instead for burial at Mount Olivet, when it is desired that bodies shall be cremated at Fresh Pond. Every one should decide this matter for himself, but the cremationist has a right to demand that cremation shall at least be made a legal form of burial.

Discussion.—Dr. S. H. Dessau thought cremation a very important measure in connection with cholera; but as Dr. Sternberg claims that the germ of yellow fever has not yet been discovered, he thought it was very doubtful if the organisms found just below the surface of the soil, where yellow fever corpses had been buried, were really characteristic yellow fever bacilli.

Dr. William Stevens only wished to express the hope that this very interesting paper would be published.

Dr. C. A. Leale said that he had recently made a personal investigation of the subject of cremation. It was a mistake to suppose that the ash remaining after incineration is a gray powder. The residue is a white, absolutely pure, inert substance, which would do no more harm, if eaten, than would a piece of chalk. It is not all in powder, for portions of bone remain large enough to enable them to be identified. As a proof of this the speaker exhibited a fragment which he had broken off from the upper end of the humerus after the body had been incinerated by exposure to a temperature of 2500° F. The femora, humeri, and sometimes even the ribs and bones of the cranium can be differentiated. He had in a large bottle at home a specimen showing how it was possible from these so-called ashes to identify the body of the person who has been cremated. He had personally superintended the cremation of a body weighing two hundred and forty pounds. The skeleton was a small one, and as the person had suffered from dropsy, a good deal of this weight was represented by water. Accordingly the residue after burning weighed only a little over five pounds, whereas the average weight of the residue is seven pounds.

Dr. P. C. Cole said that in February, 1883, he read a paper on cremation, in which he took the ground that the bodies of all persons dying of contagious diseases should be cremated for the preservation of human life, as cremation destroys all disease germs. There is nothing about it to offend the most fastidious; it is a rapid combustion instead of a slow one performed by nature. He did not doubt that the population of Brooklyn is suffering to-day from infection from the numerous large burial grounds about that city, and in country places he had known of sickness occurring in the neighborhood of cemeteries which could be traced with reasonable certainty to them. He had seen portions of bone left after cremation which were as large as the hand. It could not be denied that a few cases of criminal poisoning, which are now detected by our present system, might pass unnoticed if the bodies were cremated, but even admitting the possibility of this, it would be a small matter compared with the hundreds of thousands of human lives which are sacrificed by the present method of burial. Cremation can never be enforced here by law except in public institutions, but the influence of prominent men, and especially of medical men, will accomplish much in the way of popularizing cremation, and it should certainly be made a legal mode of burial.

Dr. F. H. Fruitnight endorsed what had been said about the advantages of cremation in cases of cholera. Most of the opposition to it is the result of ignorance, many persons believing that the body is placed immediately in the fire. Another objection is the liability of cases of criminal poisoning to escape detection.

Dr. J. Blake White also spoke of the effect it would have in shielding crime, although he favored cremation as a sanitary measure.

Dr. Frank Grauer said that in view of the fact that the two great sources of infection in cholera are the water and the soil, cremation should be insisted upon, at least for cholera corpses. Last Fall the cases of cholera dying on Swinburne Island were all cremated, but those dying of cholera in this city were allowed to be buried in zinc-lined caskets, there being no law compelling cremation under such circumstances.

Dr. E. S. Peck commented upon the powerful influence which an authoritative opinion like that of Virchow would have in promoting cremation.

Dr. F. Peterson said he had been interested in cremation for a number of years. In 1881 he visited the crematory of Gotha, and last year the one at Milan. In 1881 he had published a paper on the subject, in which he had presented the arguments in its favor. The most important valid objection to cremation is the concealment of criminal poisoning. In this connection it was interesting to recall the statement made by a well-known chemist in discussing the paper just mentioned. He said that alkaloidal poisons are destroyed by burial as well as by cremation, so that the only poison which would not be discovered after cremation and yet which might be detected after ordinary burial was arsenic. He also stated that only about one body in five hundred thousand was exhumed.

Dr. H. L. Taylor said that he had been personally in favor of cremation for many years, and had frequently so expressed himself. It was very important that public sentiment should be aroused to the necessity of making it a compulsory method of disposing of those dying of serious contagious diseases, and he thought the society should do all in its power to disseminate this feeling. He hoped the views expressed in the paper and in the discussion would be given the widest publicity.

Dr. Newman, in closing the discussion, said that the points brought out in the discussion had all been covered in his paper, but some had been omitted in reading. Cremation does not interfere with any dogma or religious creed. The law of Massachusetts in regard to cremation makes it difficult for poisoning cases to escape detection, for it provides that it shall be the duty of certain medical officials to make a special investigation previous to cremation whenever there shall be the slightest suspicion of foul play. Cremation does not interfere with judicial investigation any more than does the present method of embalming, which is now almost universally employed by undertakers. Cremation also does away with the possible horrors of being buried alive. In short, cremation is cleaner than burial, it avoids the constant visits to the cemeteries, the care and expense of tombs, and allows the ground now devoted to cemeteries to be put to a better use. In regard to the yellow fever germs in the soil, he had said that the earth was found to contain a material which was identical with that found in the excretions of yellow fever patients. When the process of cremation is completed, on looking through the windows of the retort, one sees the body unchanged in shape, but when the retort is opened, and air admitted, it falls to pieces.

Dr. Leale said he would be sorry to have the statement go on record that no religious dogma opposes cremation, for the Roman Catholics are strongly opposed to it.

Dr. Newman replied that in 1886 the Pope forbade it, but since then he has not expressed any opinion on the subject. He had in his possession letters from Catholic priests endorsing cremation, and while many priests will not attend cremations, many others do not object to doing so. In Italy, where crematories are most numerous, there is the largest number of Roman Catholics ; it is rather an individual matter with the bishops than a matter of creed. The same diversity of opinion regarding cremation is found among the rabbis, as well as among the clergy of any denomination.

CONSTIPATION.[1]

By Cornelius Skinner, M.D.

Of all the minor troubles to which the attention of the practitioner is called, I am persuaded that constipation is the most common, and, I am equally bold to say, the most intractable in its cure. It is my purpose in this short paper not to treat of constipation in all its forms, but to take up that one in which constipation seems to be the disease and not the symptom. Stricture, fissure, hemorrhoids, spinal lesions, tumors, etc., will not be spoken of, but rather that form in which we find tardy and difficult defecation with hard scybalous stools. We will not use the time in rehashing the symptoms and effects in general, but go direct to the form in question.

A large majority of these patients we find among the women, and usually at from fifteen to thirty years of age. The usual chain of symptoms are given, and on casual questioning we find that they have had time for and paid more attention to everything else in life than to the bowels. They are punctilious in all engagements, regular at meals, etc., but not at stools, the most trivial affairs, social and otherwise, causing a postponement of one of the most important calls of nature to a more convenient season, which is usually the next day. Again, we find not all typewriters, teachers, etc., or people who lead a sedentary life, but just as often floor-walkers, postmen, or those who take a great deal of exercise with good digestions and appetite sufficient. One thing is noticed in I might say all this class, and I consider it the prime cause of all the trouble, viz., these people do not drink a sufficient quantity in twenty-four hours for nature's demands. They are noticeably small drinkers and never take water unless prompted by thirst or at meals, and then will drink to excess. The majority of people in general drink too much while eating, thus diluting the juices of digestion to a degree which will eventually impair digestion. It is not easy for us to realize the amount of water thrown off by a healthy man or woman in twenty-four hours. By the kidneys we lose 42 ounces; by the lungs we lose 23 ounces; by the skin we lose 15 ounces. Now contrast this with the amount taken in during the same time, and we find little enough left for the bowels under most favorable conditions, and when we lessen this by one-fourth or one-half, we find nothing left to keep the stools soft and in the proper condition to be by peristalsis packed down into the sigmoid ready for prompt and easy expulsion.

Constipation may be called the machine of "perpetual motion," for when once started it perpetuates itself until checked by proper causes. Now, I admit that we must find the cause for all things, and then remove that cause in order to effect a cure, and, in this very common form just spoken of, to relieve it, we have simply to furnish that deficiency of water in the proper way, and the cure is effected.

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[1] Read before the Louisville Medico-Chirurgical Society, April 14, 1893. For discussion see page 420.

It is my custom not to employ any of the waters now sold for constipation; first, because they will not cure but establish in the bowel that habit, which we want to avoid, of waiting to be driven into action by laxatives; secondly, they are expensive.

As I have said before, this water should not be taken at meals, nor too close to the meal hour, but long enough before in order that it may have time by absorption and otherwise to pass out of the stomach into the circulation and bowels below. I have the patients to drink an ordinary tumbler full of cold water thirty minutes before breakfast, dinner, and supper, and to take the fourth at retiring, giving xvi oz. or Oj in addition to that taken at meals as coffee, milk, or tea, and during the day when thirsty. Except in very obstinate cases this simple remedy gives me most gratifying results. In those intractable cases I generally use the little pill of aloes, belladonna, strychnia, and podophyllin each night, or less frequently during the week as the exigencies of the case require. There will be failures on the part of the water and much disappointment to a few patients who put their trust in this remedy, but if this plan is followed systematically, in from two to six weeks we will get good results. As an apparent exception, I wish to mention a case of constipation that has given me no little concern in the past three weeks.

Patient a tall, slender woman, raised in the country, of good health and family history; age, thirty-nine years; married about two years; baby five months old. The woman first consulted me in the beginning of gestation for nausea and a small tumor in the left groin just about the site of inguinal hernia. No positive diagnosis of tumor was made, but I assured her that it would play no part in her confinement, and advised leaving it alone, there being no pain or other symptoms to attract attention. Constipation during and after gestation remained quite a factor, which was tolerably well controlled by the water treatment with the addition of a small glass of Hunyada water before breakfast. On the night of March 21 I was called, and found her suffering intense pain just over the symphysis and tumor mentioned; pain did not intermit but was continuous: tumor very sensitive to touch; almost constant nausea. My first impression was strangulated hernia. Bowels had moved in the morning after the water was taken, pain began at 5 P.M., and this was 11 P.M. Usual domestic remedies had no effect;

pulse 75, temperature 98.5° F. After watching the pain for an hour and still hesitating between strangulated hernia and colic, and realizing the importance of a positive decision, I called Dr. Rodman in consultation. The doctor met me in one hour, and the pain in the mean time had shifted into the epigastric region and had become much less. This changed the aspect somewhat, and we both concurred in its not being strangulation but colic. We concluded our visit at 3 A.M., but left a hypodermatic of morphia and atropia to be given by the husband if the pain grew worse. I saw the patient next morning at nine o'clock; she was comfortable but much nauseated; pulse 75, temperature 98.5° F. Nausea lasted all day and following night. On the morning of the 23d still great nausea, pulse 100, temperature normal; hot water ordered, which controlled nausea. Met Dr. Rodman on the street, and we agreed to give calomel in one-grain doses until bowels were moved, or six grains had been taken. At 2 P.M. pulse 110, temperature normal; patient very restless and slightly flighty; calomel was begun. Dr. Rodman saw her with me at 10.30 P.M. Pulse 120, temperature normal; restlessness increased with very marked flightiness; no movement from bowels. We now believed that there was some internal obstruction, and so expressed ourselves to the husband, and at the same time decided to open the abdomen in the early morning, if there was no change for the better. This he very positively opposed, because her mother living in the country was not here to counsel. However, we felt that all responsibility had been assumed by the husband.

Expecting to find the patient worse by morning, we left, but with the determination of going back early and prepared to operate at once. Drs. Mathews, Cecil, and Bullock were asked to meet us. We met at 8 A.M. 24th, to find pulse 100, a drop of 20, temperature 98.5° F., no restlessness, and patient much better. Since the mother could not reach the city before 7 P.M., we all decided to wait. Patient held her own until the 30th, when nausea again appeared, with pulse 120, and temperature 99.5° F. Calomel was given in doses of one grain every hour for six hours, but with no effect. On the afternoon of April 1st castor oil in one-dram capsules was given every two hours, to be kept up until bowels moved, or eight were given. After twelve hours bowels moved copiously, and thus ended to us a most puzzling case.

It is proper to say that frequent colon irrigations were made by myself with and without glycerine.

The point I want to make in the paper is that in this class of cases, where we find no especial reason for the constipation, water given in the manner described will result in a cure in most of them. The results of this treatment in my practice have been most gratifying.—*American Practitioner and News.*

BACTERIOLOGY.

AIR AND CONTACT INFECTION.[1]

By Frank J. Thornburg, M.D., Buffalo, N. Y., Demonstrator of Bacteriology, Medical and Dental Department University of Buffalo.

More ancient still than medical science itself is the belief in the transmission of disease through the air. In surgery the opinion was long prevalent that wound infection was dependent upon an atmospheric influence, and this view became a dogma after John Hunter attributed the invariable absence of fever and suppuration in subcutaneous injuries, such as simple fractures, to the fact of their not having been encountered by the air. When, in former times, cases in a hospital developed fever and suppuration, it was the contaminated air of the ward which the surgeon regarded as the source of all evil. The whole aim of surgery in the recommendations of the so-called subcutaneous method of operating, introducing the instruments through the smallest possible slit-like opening, to divide, in a groping way, tissues, tendons, and saw through bone, is in accordance with the endeavor to imitate the character of subcutaneous injuries, and procure wounds to which the air has no entrance.

Against nothing else than the air itself did Lister direct his first endeavors at asepsis—not against the air as a gas, however, but rather against the elements of infection contained in the air, which, he supposed, induced in like manner decomposition in the wound's secretions and in the wound itself, as they produced changes and decomposition everywhere in organic material. Thus began Lister in his first communication in the *Lancet*, 1867, regarding a new method of treating compound fractures and abscesses:

"The almost invariable absence of danger in simple fractures stands in striking contrast to the disastrous results we otherwise often have occasion to observe, and the excessive frequency of which is one of the most grave and appalling incidents of surgical practice. Investigating the prime reason why the wound in a compound fracture may prove so disastrous, we find simply as explanatory the septic changes of the blood, which is poured out in greater or less quantity around the seat of fracture and into the connective tissue spaces, such changes being induced by the entrance of air, the blood losing its mild character to take on the quality of an active irritant and become capable of producing local and constitutional disturbances." As had been taught by the investigation of Pasteur, Schwann, von Dusch and others, organic material, blood and tissues, may be preserved from decomposition by protecting them from contact of the minutest living organisms; so also did Lister in his new method endeavor to exclude from the wound the germs of decomposition. He irrigated the latter with carbolic acid with the use of which in counteracting decomposition he had had an astonishing experience in the deodorization of the fields over which the contents of sewers were allowed to slowly flow and settle outside the city of Carlisle—in order to destroy the germs which the air had already carried into the wound. He then applied the dressings which were already saturated with carbolic acid, and with the greatest possible care bandaged-in the entire wound, occluding it completely with a layer of impermeable material so that further entrance of germs from the air would be prevented. During the operation and at the subsequent change of dressing, the carbolized spray, in addition, was disseminated over the entire region of the wound, this being intended to place the wound in an atmosphere which would be entirely free from dangerous organisms of every variety.

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[1] Translated from Schimmelbusch's "Aseptische Wundbheandlung," with permission of the Author.

At the time when Lister made the first practical trial of his new method of treatment, our knowledge of the germs contained in the air was very limited. That they existed as the minutest forms of matter had, it is true, been recognized, but regarding their extent, morphological characteristics and appearance and their requirements for existence, almost nothing was known. It is true Tyndall has shown that they appertain to the sunbeams, which become visible when the rays of light fall into a dark room through a crack in the closed window shutter; it is also a fact that Pasteur aspirated air through gun cotton and filtered out the germs, then dissolved the gun cotton in ether and examined it microscopically, and that Pouchet collected the particles of air-dust on moist plates against which the air was blown, but all these investigations have proven of but little avail. From the fact that, in a comparatively short time, we have attained a quite thorough and more or less complete understanding of the extent, size, form, appearance and manner of life of the air bacteria, we are indebted to nothing other than the brilliantly perfected methods of bacteriological investigation for which our tribute of gratitude is due, first of all, to Robert Koch.

If we review the results of our most recent investigations into the bacteria of the air we find a conformity to exist throughout, and this conformity has greater significance in view of the varying methods of investigation employed by the different observers.

Practically every form of germ-life which we comprise under the common name micro-organisms is found in the air to a widely varying extent of distribution; bacilli, cocci, yeast fungi and schizomycetes are usually all present at the same time. As well in the extent of their dissemination as in their multiplicity are there extreme variations, but these variations have a decidedly peculiar similarity and are always dependent upon similar circumstances. For instance, in dwelling houses, the schizomycetes, bacilli and cocci predominate over the mold fungi, while in the open atmosphere more of the mold spores are present. The number of germs varies from a few to many thousand per cubic centimeter.

The air of large cities contains a greater number of bacteria than does country air, in damp weather the number of bacteria in general is less than in dry weather, in winds greater numbers are present than in still air. In the middle of the Atlantic Ocean, and upon mountains in the Alps range which are continuously covered with snow, the air is practically free from bacteria.[1]

Land winds usually contain more bacteria than do sea winds; for instance, the winds which blew from the land toward Catania as found by Condorelli-Mangere, always contained more bacteria than the wind which blew from mid-sea to Catania. The same conditions with reference to land and sea winds were found by Uffelmann in Rostock and Ciorgio Roster on the Island of Elba.

Many of the older writers, for instance, Loewnhoek, we find to have maintained that all bacteria originated from the air and that from this source organic material is infected and its decomposition induced. The same line of thought also made itself very manifest in Lister's first writings. With this opinion, *i.e.*, that the air is the natural habitat of the micro-organisms, and that from this source organic material is infected secondarily, we must, with our present knowledge of the requirements of the bacteria for existence, positively disagree. It is not the air which, par excellence, broods and harbors the deadly organisms and acts as the source of infection of everything else, the conditions are rather the reverse ; it is in the organic material that the germs exist ; only exceptionally do they from here gain entrance to the air. All the requirements for growth and multiplication of micro-organisms, viz., warmth, moisture, and a nutrient media, are not present in the air, and, as for the schizomycetes, yeast fungi and mold spores, the air is anything but a favorable place of maintenance.

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[1] Upon the fact of the absence of bacteria in the air of mid-ocean I convinced myself in a recent transatlantic voyage. While still in the harbor of Antwerp, bacilli were present in the air, varying in number from three to five hundred per cubic meter, as determined by aspirating the air through large glass tubes. Sailing down the Schelda River the number decreased to two or three hundred, and in the North Sea almost no germs were present. Upon entering and sailing through the English Channel, the observations, continued, revealed the presence of bacteria in the air varying from one to three hundred per cubic meter, although in the wider parts or the Channel the number detected on exposed gelatine and agar plates was much less. Beyond the Scilly Islands the bacteria gradually diminished and in the Atlantic Ocean from five to forty degrees west longitude no germs at all were present

Then there are bacteria, the so-called anærobic organisms, which are antagonized in their growth by the air as a gaseous medium—among this class we have the bacillus of tetanus to include—and there are presented by the air, especially by a clear atmosphere, a number of factors, as dryness, diffused daylight and sunshine, which are now known to exert an unfavorable and directly damaging influence upon the micro-organisms.

Only transitorily do germs gain entrance to the air from their essential habitat, the warm, moist and organic material of the earth's surface, and this furthermore under only one condition, *i.e.* when they are disseminated as dry dust. Naegeli, as early as the year 1870, showed theoretically and experimentally that the micro-organisms only as dry dust can become mixed with the air, and that never do they gain entrance to the latter from fluids. Yet even to-day it is difficult for an individual who inhales the nauseous vapors of a decomposing fluid to reconcile himself to the belief that with the fumes, germs from the contaminated fluid are not inhaled, notwithstanding that all investigations have proven the incorrectness of this opinion. Air offensive in odor frequently contains fewer bacteria than that which we inhale as pure and agreeable, and the stinking air of out-houses, sink holes and canals has always been found purer bacteriologically than the air of the streets, of dwelling houses and of gardens.

According to investigations made by Hesse and Petri, the open air in the interior of Berlin always contains from several hundred to one thousand bacteria per cubic meter, and that of dwelling houses from six to ten thousand, while Petri alone found that the air in the canal below Potzdamer Place showed none at all, or only a few scattered germs.

In fact the air below Potzdamer Place is, bacteriologically, the purest in the whole city of Berlin, and even at the top of the Court

House tower an individual would inhale a great number of germs, as here according to Hesse eight hundred per cubic meter are present. It has been experimentally proven that even through powerful current of air passed over the upper surface of fluids containing bacteria, germs are not disseminated, that is to say the solution only is stirred up and then settles, carrying down with it also the bacteria.

The sun which pours its hot rays upon stagnant pools swarming in micro-organisms, of course vaporizes the water and generates foul odors, but never are bacteria liberated from the solution, and even though the drops of rain and hail stones the size of a walnut, which were showered over St. Petersburg in a storm, revealed the presence of bacteria (Foutin), we are not to infer that these germs arose from the water as it evaporated, but that later the dust particles in the atmosphere became enveloped by the precipitation.

The presence of greater numbers of bacteria in dry and moving than in moist air is a sequence of the excessive circulation of dust which is induced by dryness. The reason why there are fewer bacteria in the air after than before a rain is the fact that the water in falling carries down with it the germs, and especially explanatory is the saturation of the earth's surface caused by a protracted rain, preventing temporarily the rising of dust. The absence, furthermore, of micro-organisms in the air upon icebergs and in mid-ocean is due simply to the fact that here there is no dust containing bacteria which can be stirred up by the motion of the air, and that the glaciers as well as the sea water have the property of holding down the bacteria contained in them. Condorelli-Mangeri found in Catania that, during the great assemblage of the multitudes at the time of earthquakes, the air contained more bacteria than otherwise. The air of stalls in which small animals are kept and move about, as, for instance, in the pens in the Hygienic Institute, Berlin, is, according to Petri, very rich in germs; it contains upward of thirty-four thousand bacteria and about seven thousand four hundred mold fungi per cubic meter. In the air of work shops the number of bacteria increases rapidly as soon as the work is begun, and in barracks, hospitals and dwellings the number of bacteria in the air is found to be always greatest shortly after the rooms have been swept and dusted.

In the operating room of the Billroth clinic, the number of bacteria in the air is always greatest while the clinic is in progress, after entrance of the students, and according to Hess the number of germs in the air of a school room increases from three thousand per cubic meter to twenty thousand during the sessions and to forty thousand during the exit of the pupils. All these observations only illustrate further the effect of the rising of dust on the bacterial contents of the air. Very general in the medical profession as well as among the laity is the belief of the infectiousness of the breath, and this sentiment finds vivid expression in the fictitious narratives of very ancient times, which attributed to a vigorous exhalation of the monsters the property of destroying everything it encountered. It is surprising that at the beginning of the antiseptic era special importance was not attributed to expired air as a source of wound infection, for it is not difficult to understand, *à priori*, that from the views in vogue a variety of suspicions might have been formed by operators.

Exact bacteriological study has, however, dispersed these views, and even though the air of an over-crowded room rapidly deteriorates and becomes irrespirable in the process of respiration, it is to be emphasized that germs, comprising the bacilli and mold fungi, do not participate to any appreciable extent in this deterioration, and that the latter, as in case of tunnels, pertains more especially to the gaseous constituents. Since Tyndall discovered that the breath of man is entirely free from bacteria, a variety of investigation have been made into the exhaled air, and, concordantly, they have shown that microorganisms instead of being given off from the respiratory tract are rather taken up from the air and filtered out.

In the air of sick rooms very rich in bacteria, of six hundred germs inhaled, not more than one is found in the exhaled air. Cadeac and Malet placed healthy sheep opposite to others affected with anthrax and sheep pox and allowed them to breathe for long intervals through tubes 0.30 to 1.50 meters in length, varying their experiments in a number of ways, but never were they successful in infecting through the breath of diseased animals those which were healthy. The lungs do not give up bacteria from their moist alveolar surfaces, but rather have an opposite effect, working as filters, and is it only possible for expired air to act in the transmission of germs when sputum, mucous secretion, or tissue shreds, are expelled from the expiratory tract in paroxysms of coughing. As correctly stated by Strauss the bacteria contained in the air of an over-crowded apartment must be diminished by the act of respiration, and it may be of consolation to a clinical lecturer, whose auditorium becomes filled with listeners, entering in the raising of dust, to know that each individual brings with him, in the capacity of his lungs, a filter apparatus and that with each act of respiration he renders about five hundred cubic centimeters of air free from germs. A surgeon need not fear that he will infect a wound with his breath, nor that a patient suffering from sepsis in the act of respiration can fill the air of a ward with infectious organisms.

The more our bacteriological knowledge has been extended, the more frequently the true source of bacteria has been investigated, and the more we have endeavored experimentally to transmit the wound diseases, so much the more have our fears of an infection through the air diminished, and so much the less appears to be the danger of disease being communicated in this way, as compared with that by direct contact of infectious materials. The simple consideration of the number of bacteria which can gain access to a wound, on the one hand, through the air, and on the other hand through contact, is sufficient to reduce our fears of the so-called air infection. It is true it appears large when we think of a cubic centimeter of air containing 1,000 or indeed 20,000 or 40,000 germs, but what are these numbers as compared with the bacteria contained in decomposed organic materials. The Spree River water in Berlin, for instance, contains in each cubic centimeter, *i. e.*, in the millionth part of the above quantity of air, as many thousands of bacteria, and the number of germs in a drop of pus or other extensively decomposed fluid amounts to millions. Let us take, to illustrate these proportions, a frequent instance in practice: The germs of the atmosphere which gain access to a wound settle upon it from air moderately in motion, by reason of gravity. By repeated investigations in the Von Bergmann clinic, we have proven in the operating room, with the auditorium occupied, that the number of bacteria which settle upon the surface of the wound a square decimeter in extent in the course of a half hour amounts to about 60 to 70; the number which deposit from the open air in the vicinity of the clinic being, however, much in the decrease.

The Spree River flows just past the clinic, and the number of bacteria which it here contains, according to investigation in the Hygienic Institute, varies from 3,200 to 15,000 per cubic centimeter; the average number is 37,525. Let us consider now the not infrequent instance of a ship hand on the Spree receiving a wound—and suppose it happens to be a wound a square decimeter in extent—the individual coming to the clinic with the wound open and undisturbed, although exposed to the action of the air, would receive upon its surface in the lapse of one half hour before application of the dressing, at most from 60 to 70 germs, which, furthermore, are scattered loosely and very superficially over the blood clot. If, in accordance with the usual custom, the wound be now irrigated with a liter of Spree water slowly and thoroughly for the purpose of cleansing, it may readily be estimated that over 37,000,000 micro-organisms would be brought in contact, and it defeats all efforts at calculation as far as numbers of bacteria are concerned, when, in addition, the part is wrapped in a dirty cloth to which is adherent usually in mass decomposed material rich in bacteria.

Lister was of the opinion that the bacteria of the air which produce changes and decomposition in organic substrata are also those which cause wound infection. Modern investigation has long since demonstrated the incorrectness of this opinion, however, and shown that the germs of wound infection are entirely different from those of ordinary putrefaction scattered over the earth. The direct examination of the air for the now recognized cause of the wound-infection diseases in man has afforded very scant, and for the most part only negative, evidence.

By far the greater number of air fungi belong to the innocent germs—the mold spores, yeast plants, and fission fungi, which, for man, are not pathogenic. And when the germs of wound infection have been found in the air, as in hospitals, they have, as compared with other micro-organisms, been greatly in the minority, and we find, as the result of all our investigations, that the air which is inherently an unfavorable abode for micro-organisms, allows the bacteria of wound infection, which unavoidably gain access to it, to die very suddenly.

Thus gradually the theories in vogue have been forced to decline successively, in advance of accurate investigation, and of the original views of Lister regarding the importance of the bacteria of the air in wound infection, almost nothing remains. In practice, however, there had been experienced by Lister's original views what frequently occurs in case of greatly inaugurated ideas when put into practical application. Uninfluenced by the manner and complicacy with which the method was presented as an established requirement, the good and truth have crystallized out, the non-essential and superfluous have voluntarily remained behind. Thus, a prior to the evidence afforded through experimental bacteriology, the importance to the physician of air infection had greatly diminished, and from year to year increased stress came to be laid upon contact infection in the avoidance of wound diseases. With timidity, first one operator and then another omitted the use of the spray, and then everywhere it rapidly disappeared, because experience very clearly demonstrated that it was unnecessary.

So, also, will it occur with wound irrigation recommended by Lister for the destruction of infectious germs unavoidably gaining entrance to the wound through the air, and which after discontinuance of the spray by numerous operators, were given increased emphasis as a substitute for the spray.

The results in wound repair which Von Bergmann has attained for years in his clinic without irrigation, and the results which have been attained in the same manner by others who have imitated his example, are plain evidence that antiseptic wound irrigation does not belong to the true character of modern teaching and is only an unnecessary evil. It is not required that we should fill the air of a room with carbolic vapor, we have no occasion to have filtered or heated air poured into the room through ventilators, nor is it necessary that we should deluge our fresh operation wounds with antiseptic agents. We attain favorable results without all these. The individual operating room of the Bergmann clinic is a polygonal building inclosing an amphitheater constructed of wood which at each clinic hour is filled with several hundred students. Large curtains suspended from the ceiling shut off the sun on one side; a profuse Arabesque lattice work covers a portion of the rear wall of the room, and just over the heads of the operators upon ornamental socles are placed the busts of Von Bergmann's three celebrated predecessors. Still, no one would contend that in these rooms the conditions would be especially contrary to the aggregation of dust, and repeated examinations have shown us that its air contains more bacteria than the air of any other room in the clinic, yet, notwithstanding, all operations here performed are attended with as favorable results as could be desired. In this air the abdominal cavity is quietly opened and major amputations are performed, pauses are made during the operation, the wounds openly demonstrated to the students, and then simply sutured, and in no instance has injury been seen to result from too long exposure to the atmosphere.

The individual precaution which we are required to observe against a possible infection through the air is the avoidance of the excessive clouding of dust. We would not be justified in operating where quantities of dust and dirt are blowing about and can encounter the region of the operation; this requirement, in the operating room, is very easily fulfilled, and affords difficulty only in the open air. It is also well not to clean up a room or to sweep just before a major operation, as we have seen that in this way dust always becomes agitated. Further to be observed is especial precaution in the handling of dressings saturated with pus. That the spray does not exert a favorable influence over the bacterial contents of the air attributed to it by Lister, is conclusively demonstrated. According to the investigations of Stern, the purifying action possessed by the spray is very unimportant; so, also, is it impossible by the ordinary ventilation and airing of a room to effectually diminish the bacteria contained in it. Investigations by Stern showed that, after artificial dissemination of bacteria, those which are heavier gravitate to the surface in the course of one-half an hour and the air becomes free from germs, while in case of wool and rag dust, as also with mold spores, a somewhat longer time is required. The most effectual means of freeing the air of a room from its bacteria is to keep the room closed for a number of hours until the germs have settled to the floor. Then we have done all that we are required to do in the avoidance of an infection of wounds through the air. All our further efforts are to be directed against contact infection.—*St. Louis Clinique.*

Ventilation has long been regarded as a valuable aid in disinfection, but it has remained for a Frenchman to make careful experiments to determine just how much ventilation a room requires to rid it of micro-organisms. He finds that when a room is simply aired in the usual manner, renewing the air two or three times every hour, the micro-organisms do not entirely disappear from the room during a whole Summer, and in Winter the case is much worse. A renewal of the air six or seven times an hour carries off most of the germs, but in order to rid a room of it completely a strong draft is necessary. Even this does not carry off microbes from walls, hangings and furniture, which must be dealt with separately by washing with disinfectant solutions.

A NEW ANTISEPTIC MIXTURE.—Cavazzini (*La France Medicale*, 40 année, No. 22) advises the following as an antiseptic dusting-powder:

℞ Iodoform, 55 parts;
Salicylic acid, 20 parts;
Subnitrate of bismuth, 20 parts;
Camphor, 5 parts.

This mixture makes a light yellow powder which is without disagreeable odor. It is especially efficacious in ulcerating buboes. It is an active antiseptic, hence cicatrizes and prevents undermining of the skin. Indolent granulations are quickly stimulated and suppuration rapidly disappears.

BACTERIA AND ELECTRICITY.—Drs. d'Arsonval and Charrin.—We have already demonstrated that electricity exerts a direct action on micro-organisms apart from the influence of heat, nascent chemical substances or polar action. By the introduction of certain modifications in the methods employed we have succeeded in producing profound changes in the secretions, growth and powers of multiplication of the bacillus pyocyaneus, as is well shown in the tubes before you.

It will be readily seen that the tubes which have been submitted to the action of the current contain fewer colonies than the control ones, while the organism has lost its pigment-producing properties. In a former series of researches we also succeeded in reducing the toxic properties of the secretions of the bacillus without interfering with its growth, but this result was then obtained by exposure to the action of the current for from twenty to thirty minutes. The time has now been reduced to five minutes. We hope to be able to kill the bacillus by this means.

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PHARMACY AND THERAPEUTICS.

A Forgotten Medicine.—Theriacum! Who does not invoke from this word one of a strangely complex and compounded mixtures elaborated in mysterious grottoes by some alchemist who jealously, guarded the secret of its preparation? To-day we at least have the recollection of this medicinal panacea, which once had incredible fortune. Modern chemistry demands from the chemist the resources that this science, yet young, can elucidate. In former times therapeutics were more complicated, and they resorted to composite products made up of a mass of heterogeneous substances, each having their proper action, but all aiming at an illy-defined end. Theriacum was one of those medicines that responded to all indications, without evidencing what its active principle was. "Theriacum succeeds in a thousand cases that seem opposed to each other," wrote Bordeu in the last century, "it unites all possible tastes for all stomachs. Andromache, in inventing theriacum, made the greatest of medical discoveries necessary for the human species." This enthusiasm has greatly subsided. Theriacum has lost its former splendor; its praises are no longer sung in dithyrambic verses, but it still keeps its place among modern formulas. Time, that great leveller, has respected it, but that which we know by the name of theriacum is assuredly not the fantastic electuary imagined by Andromache. Between the theriacum of the last codex and the *invention* of Andromache, there is the distance that separates the boiler of Papin and the modern locomotive.

Andromache, physician to Nero, had been charged with the task of perfecting the electuary of Mithridates. The antidote of Mithridates was not composed of less than fifty-four substances. Andromache greatly modified this primitive formula, omitting certain ingredients and adding others, and finally baptized it by a new name in order to protect his proprietary rights for his posterity. Proud of his discovery, he sang its praises in verse, in a poem of elegiac rhymes, as an evidence of his enthusiasm. Wishing to distinguish himself from Mithridates, whom he had taken for his model, he put into the composition a drug that enjoyed great reputation at that period—trochisms of vipers—the troches of vipers being the fundamental ingredient of the *galena* of Andromache. This word *galena* seems to signify *calm*, because, as Bauderon remarks, "those who were attacked by the plague, or had been bitten or poisoned by any kind of venomous beast, were cured by its use and made tranquil."

Now, how were these troches of viper made? One of our colaborers, Dr. Bernhard, has lately come to justify our curiosity on this point. Dr. Bernhard has studied theriacum, and his investigations are of the greatest interest, for he describes the vicissitudes of this singular medicine. He notes all, not without points of humor, that enlivens the charm of his paper. He shows us, too, by turn, the grandeur and decadence of this already celebrated drug, and under his guidance we shall penetrate into the too little explored domain of ancient therapeutics. It is to the faithful and conscientious translation of Dr. Bernhard that we owe the exact composition of trochisms viper, or viper troches. Here is how, according to him, Andromache explains, in his *Galena*, the method of preparing the medicine: "Choose at the end of Spring or the commencement of Autumn long, heavy vipers, with bright eyes and turned up muzzles, those that have been nourished on green fennel seeds; cut off their heads and tails, remove their entrails, and skin and boil their skinned bodies in water, with a little salt and dill. Afterward lightly press the cooked flesh, so that it be detached from the bones, and mix it with bread, not pulverized, so as to make small troches, which should be dried at noonday, turning them frequently."

Andromache also used in his mixture the root of the aristolochus, of the bitumen of Judea, of centaury, of galbanum, of cantoreum, but the viper troches remained the constitutive element that could not be omitted, under penalty of having the precious remedy fail to produce the promised effects.

It was not long after Andromache that Criton, the contemporary of Trojan, called theriacum the product invented by the Archdeacon of Nero. Was it thus named at this epoch by the generic term theriacum, because all remedies fit to cure the venomous bites of animals or insects were thus called, or was it because they contained the flesh of the viper which, as all know, are poisonous? Galen accepted both hypotheses. Galen's formula contains seventy-four different ingredients. Their enumeration, as given by Dr. Bernhard, only offers a retrospective interest. We shall give the mode of the preparation, however. Each ingredient must be first carefully examined and promptly rejected if spoiled. They are afterward pulverized in an Egyptian mortar, these roots, herbs, seeds, as well as three troches, black pepper, Jemnos earth, cannella, etc. This was liquefied in the wine of poppy juice, licorice, gums, myrrhs, incense, etc. This is mixed with powders passed through fine sifters; they now dissolve in a double vessel turpentine and other resinous gums with some honey. This is put on a slow fire, and mixed in the mortar with a large wooden pestle. When all the substances are clearly mixed by the aid of the hand annointed with opobalsamun, the medicine is put into glass or silver bottles and left open for a space of time sufficient to permit the mixture to ferment for two months. The mixture is shaken in the sun every six or seven days. The fermentation is only really complete at the end of six months, but in order to feel all of its happy effects only the medicine five or six years old should be used. The medicine preserves its wonderful properties for over sixty years.

A physiological proof was recommended to determine the good qualities of theriacum. Wild fowl were forced to swallow the liquid and were then exposed to bites of venomous snakes. They were preserved from all accidents, if the theriacum was good. It was necessary to observe some precaution in prescribing the remedy, however. It was never given to small children, at least those who could not walk, but old men were forced to take it, and renewed their virile strength under its influence. It could be taken as a wine, or in water or in cordial. It was best to take it fasting.

The electuary of Andromache was used by such eminent personages as the Emperor Antonio Marcus Aurelianus, Commodus and his successor Severus, and grew to be so popular that numerous falsifications of the remedy were made. The primitive theriacum was changed into a series of preparations, a monstrous collection of heterogeneous substance whose complex effects combatted or fitted different reactions.

In the night of the Middle Ages they walked groping in the dark. For fear of misleading or making innovations the Arabic physicians, among them Avicenna and Averrhoes, recommended the retention of Andromache's formula without making changes.

In the fourteenth century it was prescribed for the plague. One of the most famous surgeons of that epoch, Gui de Chauliac, assures us that he preserved people from the malady, thanks to the employment of theriacum. Arnauld de Villeneuve and the professors of Montpelier and Paris also used this formula.

Were we to listen to Bauderon, the author of the first treatise on pharmacy published in France, theriacum has numerous uses. It is efficacious against "poppy, hemlock, hyosciamus, aconite, cantharides, viper and mad dog poisons. It is no less a certain remedy for the sting of the scorpion and other ferocious things, in fact against all venoms. It is good, moreover, in phthisis at its commencement, in asthma, pleurisy, empyema, jaundice, dropsy, and all manner of convulsions, in ulcerations of the bladder, difficulty in urination, satyriasis, pain in the kidneys, plague and many other disorders."

As at all primitive times, vipers were an ingredient of the preparation, but much care was necessary in choosing and the manner of preparation of these reptiles. Laurent Joubert, who has written against popular prejudices in one of his best books, places a high value upon the recommendations of Andromache and Galen. It is not sufficient, according to him, to cut the head and tail off the viper. It is necessary before doing this to whip the reptiles. The instrument of this fustigation itself must be well adapted. For this operation broomstraw is preferable, "as it angers the viper by its bad odor, because the brush is weak and consequently more sensitive."

As to the vipers, it is better to choose females than males; those empty rather than those full. In France these come almost exclusively from the environs of Poitiers, "from whence they are brought by thousands to Paris," remarks an apothecary, J. de Renon. They come in packages of a dozen, with their hearts and livers still adherent, and weigh about three ounces and one-half apiece.

In order to prevent the vipers from drying out, becoming powdered or wormy, Poinet advises that they be preserved in well-closed vessels, with quicksilver or absinthe on top. It was only at the beginning of the 17th century that the primitive formula for theriacum underwent some modifications. But they dared not touch the viper ingredient as yet, owing to the specific action attributed to them by the nobility and gentlemen of quality. It was at this time that Moses Charas founded his pharmacy, with the sign of "The Golden Viper." Charas, who made some profound studies on the subject of vipers, noticed that the venom of the animal was localized in a gland situated in the upper jaw, and acted only in the act of biting. Fustigation was thus useless, as the venom was in no other part of the reptile's body except the mouth. He found, moreover, that it was not necessary to add salt, anise and dried bread to the powdered viper, as these were inert matters that added nothing to its action. Charas finally proposed different modifications of details, at the instigation of the king, Daquin, who, from the first day, was interested in his work. Strengthened by this support, Charas announced, in 1668, that he would publicly make three hundred pounds of theriacum, and convened at the performance the first physician of the court, the magistrates and delegates designated by the faculty of Paris. This solemnity went on with some formalities, and the wicked apothecary made, we are led to think, a large part of the profits. After Charas, Nicolas Semery, pharmacist, of Paris, at the corner of Rue Solande and Rue St. Jacque, inveighed against antique poly-pharmacy. "We shall profit better by its light," he writes, "if we do not hold so strongly attached to the formulas of antiquity, which must often follow the most abhorrent errors."

The treatises of Charas and Lemery hold the place of official documents. Up to the time of these authors, pharmacists followed the formula of Galen without modification. A most important innovation brought about a revolution in the preparation of theriacum, by the chemist Baume, at the end of the last century; he was the first to dare omit vipers from the formula of theriacum. This audacity was unheard of. Vipers reappeared in the pharmacopœias of 1818, 1837 and 1866. The codex of 1884 finally omitted them, but true theriacum, in spite of all this, has survived. Without doubt, it is to-day ignored, "without glory, without prestige, but, with the more vulgar drugs, so much disdained that it is now only used in veterinary medicine." But it has had its hour of fashion, its days of splendor—a glorious past,—and we can only congratulate Dr. Bernhard that his leisure hours have been passed in writing a monograph filled with so much erudition and handled in such a graceful manner.—*From the Paris Correspondent of the Cincinnati Lancet and Clinic.*

A NEW TREATMENT FOR ACUTE RHEUMATISM.—Prof. Bourget (Lausanne) has obtained remarkable results from the simple application, without friction, of an ointment of salicylic acid to the inflamed joints in rheumatic fever. The joints are then enveloped in flannel.

The difficulty with which Prof. Bourget was confronted in his experiments on this subject was to find a vehicle that would rapidly carry the acid into the general circulation.

The following four formulas, in each of which salicylic acid is exhibited in a different vehicle, were successively tried. The urine was collected every half hour and the quantity of salicylic acid present was estimated by converting it into tribromphenol:

℞.	Salicylic acid	℥ ss
	Glycerine and starch	℥ iv

Traces of salicylic acid appear in the urine five hours after the application of this ointment, but the total amount eliminated by this channel does not exceed five milligrammes ($\frac{1}{13}$ grain) in the twenty-four hours.

℞.	Salicylic acid	℥ ss
	Vaseline	℥ iv

Traces of the acid can be detected in the urine at the end of two hours. The total amount excreted in the twenty-four hours varies from six to eight centigrammes (1 to 1.3 grain).

℞.	Salicylic acid	℥ ss
	Lard	℥ iv

An hour after the application the urine gives a distinct reaction. The quantity eliminated in the twenty-four hours reaches from ten to twenty-four centigrammes (1.6 to 4 grains).

℞.	Salicylic acid	āā ℥ ss
	Turpentine	
	Lanoline	
	Lard	℥ iv

Within half an hour after the application the urine yields a strong reaction of salicylic acid. The result of twenty quantitative examinations showed that the total amount of acid eliminated in the twenty-four hours varied from twenty to eighty-four centigrammes (3 to 14 grains).

If salol be substituted for salicylic acid in the last formula, it is not until forty-eight hours after the application that any trace of absorption can be detected, the acid excreted in the urine being probably the result of the decomposition of salol.

For the last two years every case of acute rheumatism admitted into Prof. Bourget's wards is treated by the application of the last ointment to the exclusion of all other treatment. No salicylate is administered internally. The results are as follows :

Pain disappears a few hours after the application of the ointment. Swelling usually diminishes as early as the second day. The temperature comes down between the third and fifth day. Lastly, this method of treatment is never attended by any of the accidents which are occasionally observed to follow the internal administration of salicylates and allied bodies.

This method presents the further advantage that it is much less expensive than others in general use.

New Preparations.—*Carbolates of Bismuth.*—On adding a solution of bismuth to a solution of an alkaline carbolate, a yellow or dirty white precipitate is obtained, according to the preparation of carbolic acid employed. The insoluble substance formed consists of phenol-bismuth, metacresol-bismuth or naphthol-bismuth.

Researches undertaken by Dr. F. Jasenski have shown that these substances split up in the stomach and small intestine under the influence of the gastric and pancreatic juices, respectively into phenol cresol or naphthol and bismuth. The whole of the phenol and cresol thus liberated is absorbed into the circulation and subsequently eliminated by the kidneys in combination with sulphur or with glycuronic acid. A portion only of the naphthol is excreted in the urine, the remainder leaving the body in the motions. In the human subject the bismuth is almost entirely (96.4%) eliminated by the intestine.

The researches referred were carried out in the first instance at the laboratory of Dr. Nencki, Professor of Biological Chemistry at the Imperial Medical Institute, St. Petersburg; they were subsequently completed by experiments on healthy subjects and on patients in the wards of Dr. Pasternatzky, Professor of Clinical Therapeutics at the Military Academy of Medicine of St. Petersburg.

In the course of these experiments phenol-, cresol- and β-naphthol-bismuth were administered in large doses (five grammes in the twenty-four hours) during several weeks without giving rise to any inconvenience. This remarkable property, present in an equal degree in the carbolic acid formed from salol, is probably dependent upon the slow dissociation of these compounds into their component elements.

The three above mentioned carbolates of bismuth were administered with excellent results in doses of from one to three grammes (fifteen to forty-five grains) in the twenty-four hours both in acute and chronic intestinal catarrh. The gastric symptoms were relieved in a case of cancer of the stomach while diarrhœa and colic subsided in two cases of cirrhosis of the liver. A cure was obtained in a case of acute inflammation of the rectum after two enemata of two grammes each of phenol-bismuth in sixty grammes (two ounces) of water.

Dr. Jasenski believes that the carbolates of bismuth are destined to prove of valuable service in the treatment of infectious diseases, especially typhoid fever.

OINTMENT FOR INTERTRIGO AND ACUTE ECZEMA.—Dr. Wende.

℞. Camphoric acid	℥ ss
Subnitrate of bismuth	aa ℥ i
Carbonate of zinc	
Powdered starch	
Vaseline	
Anhydrous lanoline	

Mix.—External use.

Treatment of Acute Eczema.—Dr. Saalfeld (*Hospitals-Tidende*, No. 19, 1893) has seen good results in acute eczema from the use of equal parts of liquor plumbi subacetatis and a 3 per cent. solution of boric acid. This is changed every hour, and continued into the desquamative stage. The German-speaking dermatologists are afraid of treating acute eczema with humid applications, though the latter are fully in accord with the practice of the French school, and he has employed them for many years.

Painful Pharyngitis.—Dr. Ingals (*La Semaine Medicale*, No. 36, 1893) employs in painful laryngitis the following solution:

℞. Sulphate of morphine (grs. iij.)	gms. 0.2
Carbolic acid, Tannin, (grs. xxx.)	aa gms. 2
Glycerine, Distilled water, (℥ iv).	aa gms. 15

Apply locally.

◆

MISCELLANEOUS.

The Treatment of Rodent Cancer by Electrolysis. (By J. Inglis Parsons, M.D., M.R.C.P., M.R.C.S, London.)—This disease, better known in England as rodent ulcer, was first called rodent cancer by the late Mr. Moore in his work on the subject. Half a century ago it was confounded with lupus, syphilis and infective epithelioma, but it is now known to be a local form of malignant disease closely resembling true epithelioma. Lebert and Hiersch included it among the epitheliomas. Billroth considers it to be a mild form of cancer of the skin. Sections taken from a small piece of growth removed from one of my cases showed the following structures: Pervading all parts of the diseased tissues were large numbers of new cells. The majority have the appearance of small epithelial cells. In the older portions of the growth, they exhibit the irregular and larger shape characteristic of the squamous-cell epithelioma. Here they are more crowded together and in a few places form the concentric arrangement called epithelial nests. The arrangement of the small epithelial cells varies in different parts. In one place aggregated together into columns as if pushing their way into the healthy tissue. In another part filling a distinct alveolus formed by delicate connective tissue. A great portion of the stroma appears to be a structureless matrix, with the new cells imbedded in it, and has very much the appearance of a round-cell sarcoma.

The disease nearly always commences as a small pimple on the side of the nose or between the eye and the nose. It is not painful or tender like the inflammatory papules which are common on the nose in persons of gouty habit. Instead of forming a pustule or disappearing by absorption, the pimple begins to ulcerate. It slowly continues to increase, gradually extending in every direction into the healthy tissues. Meanwhile the ulceration proceeds in the older portions of the growth. In advanced cases that have not been checked by treatment the whole of the face may be destroyed. Bone, cartilage, muscles connective tissues, all disappear before the invader.

The clinical appearance varies according to the duration of the disease; an early case presents a small ulcer with a sinuous, slightly elevated border. The base is smooth and glazed, of a dull red color and devoid of granulations. There are no tubercles in the surrounding area and very little induration.

At a later stage, when the growth is more rapid, the appearance is different. In some parts the edge of the ulcer is still but slightly raised, but in other parts it is greatly thickened and presents a rounded, semi-elastic, somewhat translucent appearance. The lymphatic glands are not enlarged even in advanced cases unless there has been some inflammatory action in connection with the ulcer. Nor is there much infiltration of the healthy tissues. The extent to which this takes place varies according to the duration of the disease. In the older portion it is greater than in the more recent growth.

The age of the patient is nearly always over fifty. One sex is as much liable to be affected as the other.

The diagnosis presents no difficulty to an experienced surgeon. The long duration of the disease, the absence of enlargement of the lymphatic glands, and the appearance of the ulcer, distinguish it from true epithelioma.

Syphilitic ulcers are usually circular or oval, and often multiple. The edges are sharply cut and abrupt, and surrounded by an area of dusky red or even livid skin which is very characteristic.

With syphilis there are always other symptoms and marks of the disease to be found associated with ulceration in the tertiary stage.

Lupus is found in young subjects. If still existing in patients over fifty, numerous scars will be found as the result of former attacks, as well as other evidence of strumous disease, soft tubercles being usually found in the skin outside the area of ulceration. A tendency to exuberant granulations is characteristic of the ulcer.

Treatment.—Whatever method of treatment be adopted the object aimed at is the complete destruction of the disease with as little as possible of the healthy tissues, so as to avoid disfigurement. There methods can be adopted, viz , electricity, caustics or the knife.

Advantage of Electricity.—Applied by the method about to be described, it has the following advantages :

(1) It causes no pain. For several days after the application sensibility is abolished in the ulcers.

(2) There is no loss of blood and no shock. It is well known that operations with the knife cause profuse hemorrhage in these cases, on account of the great vascularity of the face.

(3) The absence of hemorrhage enables the operator to see exactly what he is about. No more tissue is destroyed than is absolutely necessary.

(4) Electrolysis has this advantage over the galvano-cautery and other caustics. It can be regulated with the greatest nicety and within the widest limits, by increasing or decreasing the strength of the current.

No doubt complete healing can be obtained with excision by means of the knife. But however brilliant the operator may be, the profuse hemorrhage which occurs renders the task very difficult.

The application of strong caustics such as chloride of zinc or nitric acid causes great pain. It is also very difficult to regulate with any precision the amount of tissue that will be destroyed when liquid caustics are applied.

Operation.—The anæsthetic most useful is chloroform, unless the patient is very old, when I prefer the A C E mixture. The battery consists of two Stohrer Hospital batteries joined together to increase the strength of the current.

They must be freshly charged and tested before the anæsthetic is given. Any strength from two cells to 80 can be used as required. The galvanometer—Edelmann's—is placed on a pedestal table so that the operator can see the strength of the current employed. Two assistants are required, one to work the batteries and the other to help the operator.

The needles used are from two to four inches long, composed of steel with platinum ends. The steel portion is insulated and attached to some 18 inches of covered wire. When the patient is fully under the assistant at the battery brings into circuit 20 cells and then turns the current on for one or more seconds as required. Meanwhile the other assistant holds the needles in position, while the operator feels the pulse, observes the strength of the current shown by the galvanometer and the effect produced on the growth.

After one or more seconds the current is turned off. If the breathing and pulse are unaffected the circuit is closed again, but in the alternate direction by means of the commutator on the battery. The number of cells is now increased, until the strength of the current reaches 300 to 400 milliampères, provided the pulse and respiration are maintained. The assistant continues to alternate the current and diminish or increase its strength according to the directions of the operator. The position of the needles must be changed when sufficient destruction has taken place. A fresh portion is then treated until the whole of the growth is destroyed. Full advantage is taken of the caustic action at the poles and only two needles are used at a time. Between the needles there is also some destruction of tissue lying in the direct path of the current between the poles. This is not so apparent at the time of the operation as the polar action.

Although most of the current passes by the shortest route from one needle to the other, some of it is diffused and goes through the healthy tissues lying outside the growth. In this region it is much weaker and appears to have a stimulating effect on the healthy tissues.

Duration of the Operation.—This will depend on the size of the growth and the dexterity of the operator. With a small ulcer a quarter to half an hour is sufficient. When the disease is extensive, two or even three applications may be necessary.

Risk of the Operation.—I have not as yet lost any case of rodent carcinoma, and I consider that the risk is very small indeed in the hands of a careful operator. I have applied electrolysis on eight occasions for this disease, in one case to an old man of eighty, two years ago, and he is still alive and well. Up to the present I have not noticed any alteration of the pulse, when operating on the face.

After-results and Treatment.—The patient is usually able to get up the next day. For some cases an evaporating lotion is useful for the first forty-eight hours. The wound must then be syringed two or three times a day with an antiseptic lotion, and covered with an ordinary dressing. At the end of a week healthy granulations begin to appear and healing soon takes place. If the ulcer is extensive it is best to expedite matters by grafting some pieces of skin. There is no depression and no pain after the operation.

Prognosis.--Every case that I have treated has healed completely in the course of a few weeks. In some at the end of a year or eighteen months, the disease has reappeared but it has always been easily stopped by a short application of the current. In fact the disease can always be kept under control except in extreme cases. A year's immunity can always be promised if the operation is carried out thoroughly Practically complete immunity is obtained if on the first sign of recurrence a short application is made to the diseased part.

A Fatal Case of Myxœdema which had been Treated by the Use of the Thyroid Gland.—In the last few numbers of the *Therapeutic Gazette* we have published abstracts of articles in our Progress columns which detailed instances where the administration of the thyroid gland of a sheep in one form or another seemed to produce amelioration, if not a cure. In the number of the *Edinburgh Medical Journal* for May, 1893, there are several cases of myxœdema recorded by various authors, which have been treated by the use of thyroid glands, and also a paper upon the treatment of sporadic cretinism by thyroid glands. There is, however, in addition, a paper by Dr. John Thomson, who briefly details the case of a woman, aged fifty-one years, who presented well-marked, but not severe, symptoms of myxœdema. The symptoms had developed very gradually, she having been ill more than ten years. The case is fully reported in Bramwell's "Atlas of Clinical Medicine," vol. i., plate 3. Death occurred suddenly just after she had risen to an erect posture. Dr. Thomson remarks that, while the state of the heart-muscle which was found in this case was amply sufficient to account for the fatal syncope, one can scarcely doubt that the thyroid treatment may possibly have had some influence in hastening the end. The dose of the thyroid was certainly small (2¼ thyroids in three weeks), but still it had already demonstrated the activity of its action by the very marked effect it had produced on the subcutaneous swelling.

The lesson which the case teaches is, not that we should refuse to treat patients with unsound hearts, but that our precautions in such cases should be more stringent. The dose should be much smaller than in more robust cases. The patients should be confined to bed from the beginning of the treatment, and means should be taken to insure that directions as to complete rest and the recumbent position are more strictly carried out than they, unfortunately, were in the case of this patient.

Operations upon the Uterine Appendages With a View to Preserving the Functions of Menstruation and Ovulation.—Polk (*American Journal of Obstetrics*, June, 1803), in reading his paper with the above title before the American Gynæcological Society, at its session held in Philadelphia, May 16, 17 and 18, 1893, reaches the following conclusions:

1. In cases of chronic disease of the appendages the incisions should be in the nature of "exploratory incisions."

2. The question of removal should be in the main left for determination after the organs have been exposed.

3. That the condition of the ovary should be the chief factor in determining the question of procedure.

4. That if need be, this may be determined by exploratory incision of the ovary or puncture.

5. That if the ovary contains pus, it and the associated tube should be removed, it being the rule that whenever an ovary is removed the tube must accompany it.

6. That if the tube contains pus, the ovary being free from pus or disseminated cystic degeneration, the operator is at liberty to recommend either the removal of both organs or else the partial amputation of the tube, leaving the ovary: and that the same rule should apply in cases of hydrosalpinx and hæmatosalpinx.

7. That cysts of the ovary do not indicate removal, provided they are not general throughout the organ and can be enucleated,—hæmatoma of the ovary a possible exception.

8. Tubes with open infundibula, even though adherent and affected with parenchymatous inflammation and endosalpingitis, do not demand removal, excepting when one opens into a pus cavity.

9. A tube whose outer end is closed may be opened, cleansed, and its inner and outer coats coaptated, and then be returned to the abdominal cavity, provided it does not contain pus and possibly old blood.

10. Adhesions do not demand the removal of the tubes and ovaries unless they be so dense that in breaking them the appendages are seriously injured This presupposes that the appendages in themselves are not sufficiently diseased to demand removal.

THE USE OF ORGANIC LIQUIDS EXTRACTED FROM GLANDS AND OTHER ORGANS.—Editorial from *The Therapeutic Gazette.*—Brown-Séquard, who more than twenty years ago enunciated as a general principle that all glands, whether they have excretory ducts or not, give to the blood by an internal secretion principles which are of great importance, if not necessary, has since proved, at least to his own satisfaction, that not only glands, but all tissues have, besides their influence on blood resulting from an interchange of nutrition, an internal secretion. This general truth is the foundation for his new therapeutic system.

In the *British Medical Journal*, there is a brief but very thorough *résumé* of the practical application of this principle. After describing the fluid used under these circumstances, the modes of introduction of the various organic liquid extracts are briefly discussed.

In addition to the thyroid gland, the thymus and the medulla of bone are said to have a therapeutic action like the thyroid after having been swallowed. This is not so, however, for the sexual glands or for the pancreas. Condensed liquid extract of these two glands may, however, be injected into the rectum with a beneficial effect almost as marked as would follow an injection of a smaller amount beneath the skin. The ordinary way of using these organic extracts is to drive them beneath the skin or into the blood. When the experimenter injects these liquids into the lungs through the laryngeal glottis, the absorption is almost immediate ; there is no pain and no coughing, or trouble of any kind. This, Brown-Séquard states, is the safest way of injecting two, four, six, or eight drachms of organic liquid which are to be introduced into the blood, provided the medical man is sufficiently adroit for this delicate operation.

The mode of preparation of the liquid organic extracts is exceedingly important. This has been perfected by D'Arsonval. It is applicable to all the organic extracts. Taking, for example, the testicular extract, that which has been most widely advertised, most highly extolled, and most bitterly condemned, the method of preparation is as follows: Immediately after bulls are slaughtered a tight ligature is placed high up on the whole mass of the spermatic cord, thus retaining some blood in the veins ; the testicles are removed. the coverings are cut away with sterilized scissors, the organs are then washed in dilute bichloride solution, afterward in boiled water. Each testicle is then cut in four or five slices and, with the core, is placed in glycerine, a liter to the kilogramme of testicle. In twenty-four hoursa liter of freshly boiled water containing ten to twenty-five grammes of pure chloride of sodium is added. This mixture is passed through filter-paper which has been previously sterilized with boiling water. The filtration will be more rapid if the glycerine is heated to about 104° F. A final sterilizing filtration through a D'Arsonval filter is practiced, and the liquid is then ready for use. For a description of the method of preparing the organic extracts those of the various organs are taken up in turn and their physiological and therapeutic actions are pointed out.

Thus, injections of renal liquid in organic affections of the kidneys are supported on theoretical rather than practical grounds, and liquid extract of pancreas is suggested for the cure of diabetes, and hepatic liquid extract is suggested as a means of improving the condition of the patient suffering from advanced disease of the liver. Leaving out of consideration the various extracts which this eminent scientist prepares, and the administration of which he advocates in diseased conditions of the organs from which the extracts are derived, the theory upon which this system of therapeutics is based would seem to be the creation of a diseased imagination, were it not for the very positive clinical evidence afforded by at least one of these extracts,—that is, the active principle derived from the thyroid gland. This has been shown beyond all cavil to be curative in cases of myxœdema; and though this fact by no means forces us to the acceptation of the truth of Brown-Séquard's theory, it at least entitles the latter to careful consideration, and, under some restrictions, to practical tests.

Apparently the testicular extract has been given a thorough clinical trial, and its failure is in striking contrast to the brilliant results obtained by the injection of thyroid extract. There have been a few reports of cures from injection of testicular juice.

Brown-Séquard has himself perhaps contributed the most striking cases. Others, and almost without exception those whose scientific reputations are by no means on a plane with that of Brown-Séquard, have reported astonishing results. Wherever the method has received careful scientific study it has been found wanting.

Bardet (*Journal de Méd. de Paris*, No. 22, vol. v.), a therapeutic expert, has again gone carefully over the ground. His results were good only in that class of invalids who are always temporarily benefited by any new method; indeed, he implies that the testicular juice was practically as inert as so much water, and when the patient was kept ignorant as to which was injected, the water was followed by equally gratifying results.

Bardet draws a rosy picture of the coming day when all symptoms will be instantly cured by injection. He paints the exhausted neurotic sinking into the tranquil slumber of bounding health after transfusion of brain extract: the diabetic again becoming stout and lusty under subcutaneous administrations of pancreatic extract; the weak and debilitated bounding from excess of energy after the application of the active principle derived from macerated muscles; and, finally, the feeble old man regaining in a moment the spirit and powers of youth. This he characterizes as a beautiful dream, but so opposed to the recognized laws of dynamics and etiology that its realization can never be.

It is, perhaps, unfortunate, so far as a trial of his extract is concerned, that Brown-Séquard has made such extravagant claims for its therapeutic efficacy. He has seen testicular juice cure cancer of the stomach, leprosy, ataxia, and a long list of disorders as varied in their nature as they are hopelessly beyond the reach of medication.

It is a tribute to this distinguished scientist's high standing and to the good faith with which he advances his chimerical theories, that the French scientists not only refrain from that ridicule at which they are especially apt, but even subject the methods to careful scientific investigation.

TREATMENT OF MYXŒDEMA.—Vermehren (*Deut. med. Woch.*) relates a typical case of myxœdema in a woman, aged 42, who was treated by Professor Howitz in the beginning of 1892 by feeding the thyroid gland. Four lobes of lightly cooked calf's thyroid were given daily. There was great improvement in the course of three weeks. Slight relapses occurred after she was discharged, but they disappeared rapidly under the same treatment. During the treatment there were slight stenocardiac attacks, which necessitated its temporary suspension. Two other cases have since been similarly treated by Howitz with good results. The author then records a case of sporadic cretinism in a woman, aged 29, treated with success by the administration of thyroidin. This substance is obtained as a grayish powder by the precipitation with alcohol of a glycerine extract of the finely chopped and pounded-up gland. It was given in doses of 10 to 30 cg., the total amount taken being 4.25 g. The swelling in the face, trunk, and especially in the hands, diminished. The mental condition improved. Fine hair began to grow in the axillæ and over the pubes As to the diagnosis, the author says that there was no doubt the disease began in early childhood, and corresponded to the picture of infantile myxœdema. He refers to another case still under treatment which promises to give a similarly successful result. Laache (*ibid.*) also reports a case in a man, aged 49, successfully treated by feeding with thyroid gland. The patient presented the characteristic symptoms of the disease. At first the remedy was taken in the form of a glycerine extract, or after it had been cooked, and salt and bouillon added. Later the fresh gland, finely cut up and seasoned with salt and pepper, was used. At the commencement the thyroid gland of the sheep was employed, but afterward that of the calf. The patient was discharged well at the end of three months, but was recommended to take a dose of thyroid gland from time to time. Some unfavorable symptoms also appeared during the treatment, perhaps due to the doses being too large. They disappeared when the treatment was suspended. The author says that the only explanation of the good effects of the treatment is that of specific substitution.—*Progress.*

A CAT THAT WAITS FOR THE CREAM. (By Dr. R. W. Shufeldt.)—Zoölogical literature, as we all know, actually teems with anecdotes about cases of the exhibition of the so-called "instinct" on the part of animals of all kinds. But the present writer has long ago ceased to classify those cases in any such category, for my studies and observation have taught me that many animals are not only excellent observers, but that they are also good *reasoners*. The power of observation extends for a long way through the animal series, and this, together with the power to *reason*, is by no means restricted to man. Reasoning faculties and observing faculties in all are precisely the same, though the power to exercise the first-named varies greatly in degree. Hundreds of cases might be brought forward in support of this view, but it is hardly necessary, for, as an opinion, it is rapidly gaining ground any way. We have no intention, however, in the present brief article, to devote the space to any such far-reaching argument, and I simply wish to record here another case that has just come under my personal notice, of an animal which by the exercise of both its power to observe and to reason has been enabled to gratify one of the tastes it possesses. Cats are good observers, and often have good reasoning powers, and what I desire to say is about a small three-months-old kitten of mine, one of the pets of the household. Like all kittens, this one has, after its night's fast, a good, sharp appetite in the morning, but she also has an inordinate fondness for cream. So all-possessing is this taste upon her part that when her morning saucer of milk is placed before her she simply sniffs it a moment or so, then goes away patiently to wait for the cream to rise upon it. In the course of forty minutes or so she will return to the saucer and ravenously devour the cream, taking great care, however, not to drink any of the "blue milk" below it. Once or twice more during the day she will return to the saucer to partake of such remaining cream as may subsequently arise to the surface. Never does this kitten, though, ever drink the last third or so of the fluid, or the now "skimmed milk" that invariably remains in her saucer. Observation of a varied nature is exercised here, for this kitten has, on her part, not only discovered that *standing* milk will produce in a *certain time* a coat of *cream* upon its surface, but that this phenomenon at longer intervals repeats itself once or twice again during the day, and to gratify her taste for that kind of food, her reasoning powers have taught her that it simply remains to await in patience the fulfillment of the process.

ODI PERSICOS.—On June 24, Goolam Kader, a notorious Arabian quack oculist, was held for trial in Special Sessions on a charge, made by the Medical Society of the County of New York, of practicing medicine without a license; bail being fixed at $500. A few days previously he had opened an office and inserted glowing advertisements in a number of newspapers, including several published in French, German, and Italian. One of these attracted the attention of Dr. Ferdinand C. Valentine, an accomplished linguist, who, as the editor of *Medical Abstracts*, is in constant receipt of all the foreign medical journals; and he at once recognized the name as that of a quack who, on account of his outrageous practices, had been prosecuted in Genoa, Brussels, Cologne, Berlin, and many other Continental cities. Dr. Valentine found from his reading that his favorite operation was that for cataract, and that in consequence of his so-called "cures" hundreds of cases of total blindness had resulted. He at once reported the fact of the man's establishing himself in New York to the County Medical Society, and the career of this dangerous charlatan here was quickly cut short. The other American cities will now have to be on the lookout for him. —*Boston Medical and Surgical Journal.*

A NEW METHOD OF BONE SUTURE.—Dollinger (*Centrlbl. f. Chir.*) describes a new method of bone suture which he has made use of in two cases where perforation of the bone could not easily be carried out. The first case which he treated was a patient, aged forty-three, with a pseudarthroris of the right leg, coming on after a fracture which had occurred fourteen weeks previously. At the operation the bones at the seat of fracture were found to be very ivory-like, the medullary canal was scarcely visible, and there was no trace of callous formation. The tibia, which was fractured transversely, was sutured with silver wire in the usual way. The fibula was fractured in two places, the middle piece, about four inches long, lying loose. While an attempt was being made to perforate the hard middle piece, it began to separate from its periosteum. Perforation was not further attempted, but a ring of silver wire was placed around the upper part of the upper fragment a little above the seat of the fracture, and a similar ring around the upper part of the middle fragment. A piece of wire was then placed on each side of the fragments, parallel to the long axis of the bone and within the two rings encircling the bone. The rings were then tightened up and fixed, and then the longitudinal wires were doubled over and their ends united on each side. By this means the fragments were held in position. The lower end of the middle fragment and the upper end of the lower fragment were next united in the same way, and the ends drawn together. In eight weeks there was complete bony union. In the second case the tibia was sutured in like manner, after a piece had been resected along with an osteochondromatous tumor which had developed in the part. The bony ends which were approximated after the removal of the resected part were hard and ivory like, and did not easily admit of suture in the ordinary way.

MEDICAL NEWS AND NOTES.

Tartar Emetic in Constipation.—In constipation occurring in the thin and anæmic, the efficacy of sulphate of magnesia can be much increased by the addition of one or two grains of sulphate of iron, taken before breakfast each morning However, if the patient be of full habit, robust and plethoric, an addition of tartar emetic, $\frac{1}{16}$ grain, will be of advantage.

Apropos of the Revival of Symphyseotomy.—Segault, the father of symphyseotomy, said in a discourse published in Paris in 1778: "Without doubt time and success will avenge me; why should I be more fortunate than so many others who have had the happiness to make discoveries important to humanity? They have been persecuted during life, and posterity has worshipped at their tomb."

Resorcin in Whooping-Cough.—At a meeting of the Boston Society for Medical Improvement (*Medical and Surgical Journal*, Boston, February 27, 1890) the use of resorcin by inhalation, in the treatment of whooping-cough, was referred to by Dr. Farlow, and two cases reported in which this treatment had resulted in cure in one week. Farlow stated that he was not sure that the resorcin also favorably influences the accompanying bronchitis. He used a 2 per cent. solution, spraying it well into the nose, pharynx and larynx every two hours.

Abnormities of Locomotion in Nervous Disease.—Paul Blocq has recently issued a little work of one hundred and fifty pages upon the variations in the gait of persons suffering from nervous disease. Difficulty of locomotion is one of the cardinal symptoms of organic or functional nervous affections. The ordinary physician recognizes two distinct types, perhaps, the paraplegic gait and the tabetic. In Blocq's interesting brochure the different varieties of the pathologic gait are described; and in a chapter on symptoms, these abnormities of locomotion are concisely classified according to pathogenesis and clinical observation.

The Case of a British Army Surgeon.—The recently settled case of Surgeon Briggs, of the British army, demonstrates therein a condition of affairs which could not exist under the vilest political spoilsman of the United States. Dr. Briggs attended the wife of an English nobleman who had been forcibly subjected to sexual pervert outrages by her husband while resident in India. The wife appealed to the London Divorce Court, and summoned Dr. Briggs from Calcutta as a witness. She obtained her divorce amid universal execration at the vileness of her husband, through whose social influence Dr. Briggs was dishonorably discharged from his position in the army. The Duke of Cambridge, Commander-in-Chief of the British Army, superciliously resented all attempts of Dr. Briggs to secure justice. Appeal to the House of Commons resulted in complete reinstatement of Dr. Briggs, with the declaration that his discharge had been illegal and of non-effect. With such revelations in the British army medical service, with the recent showing that the Marquis of Salisbury and a couple of dukes are able to set sanitary ordinances at defiance by social influence, British criticism on the American spoils system is in decidedly bad taste. The mote in the American eye stands no comparison with this British beam.—*Medical Standard.*

RESECTION OF LUNG FOR TUBERCULOSIS.—Tuffier (*Bull. et Mém. de la Soc. de Chir.*, December, 1892) has directed attention to a patient on whom, more than two years ago, he resected the apex of the right lung. A free incision having been made in the second intercostal space, the protruded portion of lung, after careful examination, was ligatured and then cut away. The pulmonary fragment thus removed contained tuberculous deposits in which bacilli could be recognized on microscopical examination. The wound healed by first intention, and on the ninth day there was found to be perfect respiration in the right lung from base to summit, without any trace of pneumothorax. Since this operation the patient, an adult male, has resumed work, and has suffered neither from cough nor from hæmoptysis. He is able to do heavy work, and can run without any feeling of dyspnœa. His general condition has much improved, and his weight has increased by nearly 16 lbs. since the date of operation. The respiration is as full on the right as on the left side, and there is no apparent difference between the two lungs.

A MEDICAL CLUB BUILDING is proposed for Detroit. There are five medical societies and 441 physicians in that city. It is proposed that they unite and get a building for common scientific and social purposes.

CONSOLIDATION OF CINCINNATI MEDICAL SOCIETIES.—A movement is on foot to consolidate all the medical societies of Cincinnati under one society.

NEW YORK HAS STILL ANOTHER HOSPITAL. It is called the Lebanon Hospital. It is situated on Westchester Avenue and 150th Street.

THE ANTI-EMETIC ACTION OF MENTHOL.—Dr. R. Blondel, in *Nouveaux Remedes*, reports a series of investigations regarding the anti-emetic properties of menthol. He states that in small doses frequently repeated it stimulates the sluggish muscular action of the stomach; that nausea and gastric spasm can be stopped at such a point that even ipecac loses its power of producing emesis. This property of menthol makes it of value in the treatment of dysentery by ipecac, when a fifth of a grain of menthol may be administered with each dose.

LAZINESS.—The *Maryland Med. Jour.*, in an editorial on this subject, after detailing several cases, says: "Our private opinion, deducted from the above observations, is, that if a man loses inclination for work, who is not dissipated or morally depraved, has no hernia, is not a physician, and does not draw a pension, he is probably suffering from some obscure disease, and should receive careful medical examination and treatment."

AN INSINUATION.—The authorities at Dieppe have recently issued their annual instructions to the life-savers who patrol the bathing beach during the season. Among other rules is one instructing them "when a lady is in danger of drowning to seize her by the dress, and not by the hair, which oftentimes remains in their grasp."

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BOOK REVIEWS.

"History of the life of D. Hayes Agnew, M.D., LL.D." By J. HOWE ADAMS, M.D. 8vo, pp. 376. Philadelphia and London: F. A. Davis.

Dr. Agnew will undoubtedly rank as one of the greatest of American surgeons. This high position was attained after a prolonged and sometimes discouraging struggle, for it was only after thirty years of practice that he gained his full professorship. He was born in Lancaster County, Pennsylvania, in November, 1818, and at the age of eighteen entered the University of Pennsylvania, then by far the most popular medical school of America. It was in many respects an important period in medical Philadelphia, being one of vivid and productive activity. The faculty contained such names as Chapman, Hare, Gibson, Horner, Jackson, Wood, and Hodge. In 1841 he married Miss Irwin, the daughter of a prominent iron manufacturer. For several years he engaged in business as a partner of his father-in-law. For various reasons the business became unprofitable, and he returned to the active practice of medicine and settled in Cockronville. At this period he determined to be a surgeon, and clearly understood the necessity of accurate anatomical knowledge. He obtained his dissecting material from Philadelphia, but the knowledge of his studies having gone abroad, he became so unpopular that his practice was much impaired. He, therefore, determined to remove to Philadelphia in 1848. He soon became connected with the celebrated School of Anatomy. It has been supposed by many that he established this school. Though this was not the fact, he reconstructed it into virtually a new institution, where for five evenings in the week for eight years he dissected and taught. The school became very famous and the reputation of Dr. Agnew became established. His first connection with the University of Pennsylvania was formed in 1863 by appointment as Demonstrator of Anatomy. During the war he did much hospital work, especially at the Mower General Hospital. In 1870 he was appointed Professor of Clinical Surgery in the University and in the following year became Professor of Surgery. This position he held for eighteen years, his last didactic lecture being delivered on April 5, 1889. He had been an active teacher for thirty-eight years. While in the School of Anatomy he delivered 1,800 lectures and at the University over 2,600 lectures. His vigor and activity are shown by these figures, as they mean that for over thirty-eight years he lectured nearly every other day. The anniversary of his fiftieth year of practice was celebrated by his medical brethren by a reception and banquet. He died after a brief illness on March 22, 1892.

He was a prolific writer for many years. His greatest work is that upon surgery in three volumes, the first of which was published in 1878 and the last in 1883. It is unique in its design and method of treatment. It is a rich storehouse of clinical facts and personal observations of fifty years' experience in surgery. No other work upon surgery has to so great an extent been the result of personal experience. Since his death the advisability of revising it was considered, but it was wisely decided to leave it as the author left it. It was justly thought that its peculiar personal character would be destroyed and the value would be lost by revision by other hands.

Dr. Agnew became widely known through his attendance upon President Garfield. It has been erroneously stated that his reputation was established by this case While it undoubtedly brought him to public knowledge, he had been for many years considered one of the most prominent, perhaps the most prominent, American surgeon. It is well-known that he was regarded as the chief surgical advisor in the case of the president. Criticism upon the management of any case is to be expected when the case is an important one. It is, we believe, the general feeling of the profession in view of the autopsy, that the case of President Garfield was managed with extreme wisdom. This belief was enforced by the fact that the defense in the prosecution of Guiteau made no attempt to throw discredit upon the medical management but rested their case entirely upon the plea of insanity, although the assassin himself set up the claim that he did the shooting, not the killing.

Dr. Agnew's professional manner was perfect and as a consultant he stood as a model. Colonel Rockwell, the intimate friend of President Garfield, said, "When I saw Dr. Agnew at the President's bedside I felt instinctively that the President was in the hands of a man of power and ability; Dr. Agnew's personal appearance was just as I imagined the ideal surgeon should be."

As to the work of Dr. Adams as a biographer, it is extremely satisfactory. He has written conscientiously, but with admiration and love for his subject.

Dr. Agnew rose to his high position through sheer force of ability and hard labor and the perusal of his biography is not only pleasant, but extremely profitable to the medical man. To him can be truthfully applied the lines:

The heights by great men reached and kept,
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upward in the night.

"Lectures on Mental Diseases," Designed Especially for Medical Students and General Practitioners. By Henry Putnam Stearns, A.M., M.D., Physician Superintendent of the Hartford Retreat, Lecturer on Mental Diseases in Yale University. With Illustrations. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut street. 1893.

This work is based upon a course of lectures delivered at the medical department of Yale University. It is designed, however, for the general practitioner even more than for the medical student. The increasing frequency of mental disease and the great advances that have been made in this department of medicine render a new work acceptable. No greater advance has been made in the study of minute anatomy during recent years than in that of the brain and spinal cord. This study has been stimulated by a desire to determine more fully the relation which exists between disordered mental states and disease of the brain. This relationship has long been surmised, but it has been only in recent years that anything like a physical demonstration has been effected. Improvements in microscopy and the discovery of means for the preparation of brain tissue for observation has rendered it possible to study many pathological conditions which were before unknown The author begins his work by a résumé of our present knowledge of the anatomy and physiology of the nervous system. Those parts of the brain which are supposed to be most intimately concerned through their physiological functions with mental process receive chief attention. The illustrations in this part of the work are extremely good and add much to its value.

Considerable space is devoted to the underlying elements of insanity—hallucinations and illusions. The discussions upon imperative concepts and delusions are especially good.

It is only after this part of the work has been considered that a classification is attempted. He divides insanity upon a symptomatological and etiological basis. According to the former classification we have: 1. Melancholia. 2. Mania. 3. Primary delusional insanity. 4. Folie Circulaire. 5. Dementia. Upon the etiological basis he considers insanity under six headings. 1. Epochal, as Senile or Climacteric Insanity. 2. Sympathetic, as Puerperal or Ovarian Insanity. 3. Toxic, as Alcoholic Insanity. 4. Neuropathic, as Epileptic and Hysterical. 5. Pathological, as General Paresis, Insanity from coarse brain disease, and Acute Delirium. 6. All other less frequent varieties. Each cf these various forms are discussed at length, and upon the whole in a most satisfactory manner. The work is to be commended as eminently judicious and practical.

An appendix containing extracts from the laws of the different States and territories concerning the care of the insane adds materially to the value of the book.

"Recent Developments in Massage, Historical, Physiological, Medical, and Surgical." By Douglas Graham, M.D, Boston, Mass., Fellow of the Massachusetts Medical Society, Member of Alumni Association of Jefferson Medical College, of the American Medical Association, of the British Association, etc. Second edition. Illustrated. 1893. George S. Davis, Detroit, Mich. Physician's Leisure Library. (Single copies, 25 cents.)

This work, as indicated by its title, is not intended as a complete textbook of massage. It is designed chiefly as a supplement to the author's Treatise on Massage. The work is, however, something more than a brief review of recent advancement. It is in fact a general and concise review of the subject, and as such must prove of decided value to those interested in this mode of treatment. A few pages are given to the discussion of the physiological effect of massage upon the muscles. Most of the work is devoted to the practical description of this treatment as applied to various diseases. The author is extremely conservative and does not fall into the error so common to those who write upon special therapeutic methods. He evidently does not consider massage a cure for all the ailments to which flesh is heir. The physician certainly has in massage a very valuable auxiliary in the treatment of certain troublesome and stubborn disorders, and this little work is to be decidedly commended.

"The Uses of Water in Modern Medicine." By Simon Baruch, M.D., Attending Physician to the Manhattan General Hospital and New York Juvenile Asylum; Consulting Physician to the Montefiore Home for Chronic Invalids; formerly Chairman of the Board of Health of South Carolina. Volume II. George S. Davis & Co., 1892. Physician's Leisure Library. (Single copies, 25 cents.)

The first volume on Dr. Baruch's work on the Uses of Water was reviewed in Gaillard's Medical Journal of May, 1892. The fact was then referred to that the subject was presented entirely from the standpoint of the clinical observer. The second volume as well as the first was designed for the use of the practicing physician in his every-day work. The technique of hydrotherapy receives extended consideration. This is followed by a description of the tub bath and its clinical application to various diseases. The douche next receives attention, and a very complete description of its various forms and application is given together with the diseases to which it may be applied. The sitz bath and the hot air bath, also, receive considerable attention. The most interesting and perhaps valuable portion of the work is the hydrotherapy of fevers. The treatment of typhoid fever by cold baths is earnestly advocated and statistics are given which certainly seem very convincing. By the cold bath is meant the Bland Treatment—a bath at 65° F. for fifteen minutes whenever the temperature reaches 102° in recto. By this treatment a reduction of mortality to 2.7 per cent. is claimed.

The author believes that water offers every condition demanded of a remedy which appeals for the recognition of the profession. The action of water may be explained in most instances upon rational principles. He believes that it is capable of more accurate "dosage" than medicinal drugs, because the range of temperature from 40° to 115° admits of every phase of stimulation and depression; the range of atmospheric pressure from 0 to 30 pounds admits of the same gradation, and the duration of time from simple impact to prolonged application affords an immense range of effect. We have then, thermometer, pressure-gauge and clock, three elements of precision. Clinical results detailed from most trustworthy sources certainly entitle water to the highest appreciation of the profession. Hydrotherapy is unquestionably an important and much neglected auxiliary in treatment of disease. The most important elements in its application are mastering of the general principles of hydrotherapy, precision in their application and perfect adaptation to the constitutional peculiarities of the case. Unfortunately many of the most important procedures must be carried out in hydrotherapeutic institutions, which are out of the reach of the majority of practitioners. Much, however, may be done by the general physician at the home of the patient, both to his own credit and to the benefit of the patient.

"An Inquiry into the Causes of the Mortality of Diphtheria, and Some Suggestions with Reference to the Treatment of Diphtheria," by Alonzo Bryan, M.D., Detroit, Mich.

"The Cure of Complete Prolapse of the Rectum by Posterior Proctectomy," by Jno. B. Roberts, M.D., Philadelphia, Pa.

"Colotomy." A Clinical Lecture on Diseases of the Rectum, Delivered at the New York Post-Graduate Hospital, by Chas. B. Kelsey, M.D., New York.

"Our Dispensaries, Hospitals, Philanthropy, Frauds, and the Necessity of Medical Reform," by L. F. Cuado, A.B., M.D.

"The Treatment of Alcoholic Inebriety," by Fred Peterson, M.D.

"Reminiscences of the Founders of the Woman's Hospital Association," by Thos. Addis Emmet, M.D.

"Character the True Test of the Physician," by J. W. Long, M.D.

"Report of the Committee on Permanent Organizations of the Pan American Medical Congress," to the American Medical Association, Milwaukee, Wis., June 6, 1893.

"Remarks on the Presentation of Diplomas," to the Graduating Class of Barnes Medical College, by C. H. Hughes, M.D., St. Louis.

"Deformities of the Nasal Septum and Their Influence in Diseases of the Throat and Ear," by Wm. Scheppegrell, A.M., M.D.

"Congenital Ptosis with Synchronous Movements of the Affected Lid and Lower Jaw," by Alvin A. Hubbell, M.D.

"Extraction of Steel from the Interior of the Eye with the Electro Magnet," by Alvin A. Hubbell, M.D.

EDITORIAL.

In the editorial of July, our readers must have been surprised to find opinions expressed in regard to the Code of Ethics which are diametrically opposite to those which have been uniformly maintained by the Journal in the past. Without explanation or comment it might be assumed that the Journal had entirely abandoned the ground it formerly occupied. This is not true, the Journal now as heretofore upholds the Code of Ethics of the American Medical Association in its integrity and sees no reason, whatsoever, for any revision. The editorial in question was written by a gentleman whose contributions were so highly esteemed that no revision of anything coming from his pen was deemed necessary, but in this instance, a mistake was made in publishing this article without supervision. We do not believe that the sections of the code which detail the obligations of the patients and of the public to physicians could be profitably omitted. On the contrary, if it be important to formulate rules for the regulation of our conduct toward patients and the public at large, so is it equally important to define the correlative obligations of patients and the public toward the medical profession, if for no other reason than that we may have a clear apprehension of our rights. How are we to maintain our rights unless we have a clear perception of what those rights are? In regard to the question as to consultations with homœopaths we cannot do better, to express the views we have invariably maintained, than to quote from the admirable address of Ernest Hart, the well known editor of the *British Medical Journal*, delivered before the American Editors' Association, at its meeting in Milwaukee, June 5, 1893. Speaking on the subject of such consultations; he says, "Some ingenuity has been exerted in endeavoring to show or to suggest that the rule that prevails everywhere, and unquestioned throughout Great Britain, forbidding such consultations, is a selfish rule and contrary to the public welfare. If it were so, it would be self-condemned, for we are probably all of us here well agreed that the fundamental principle of medical ethics is that all rules laid down as part of the code are, and must be, as much for the welfare of the whole community as for the good guidance and advantage of the medical profession as a class.

The arguments that are sometimes used to indicate that the refusal of a practitioner of good standing to consult professionally with a homœopathic practitioner is contrary to the public good and a mark of illiberality and intolerance among regular practitioners, are a false, fabricated, specious and worthless plea. On what is the demand for such a consultation based? The only correct and forcible basis is that it should be for the benefit of the patient. It is sometimes said that, at any rate, the regular practitioner can and ought to give his assistance in determining the diagnosis of the case. But the answer to that is plain as noonday. We are not here, nor do we enter the sanctuary of the sick room to solve conundrums. The medical mission is to heal the sick. The physician fulfils his function of the ιατρὸς only when his diagnosis is to be followed by effective treatment. Now we all of us have the conviction that the treatment, so-called, instituted by homœopaths as such, is absolutely ineffective, and does not and cannot, if faithfully carried out in accordance with what is known as the homœopathic doctrine and method, be of any avail whatever. Of course, it is said that very often the so-called homœopathic treatment is not carried out by homœopaths. In that case the nomenclature is itself a fraud, and we are not called upon to soil our hands by taking part in any such imposture. But we treat homœopathy and are willing to regard it as an honest delusion. The physician, however, can take no part in such delusion. If he were to accept the position of a mere solver of riddles, he would lose all that makes medicine dignified and that ennobles its functions. He would be doing worse than this in entering into a consultation with a homœopath. We are entitled to assume that the homœopathic practitioner himself believes that his treatment of infinitesimals may be of some benefit to the patient. At any rate, we may feel sure that the patient entertains that delusion, and by entering into consultation, over the sick-bed, the physician would ratify by his presence that understanding. The public could not understand that fine-drawn artificial and unholy distinction which would allow a conscientious practitioner to stand by the bedside of a man smitten with disease, trembling, perhaps, on the threshold of death, and on the paltry pretense of assisting to clear up the diagnostic difficulties of the case, to examine the patient and leave him to the tender mercies of one who, in his heart, he believes, and who, with all his intelligence, he is convinced. is a person carrying out a system of medicine so-called, which is absolutely incapable of affording to the patient such chances of life as the advancing inroads of disease may leave. Consultation with a homœopath, regarded from this point of view (and I know of no other from which it can fairly and worthily be regarded), is worse than a sham, worse than an imposture. It is a crime. No ingenuity, no special pleading can set aside, so far as I have ever been able to understand the matter, the prevailing ethical rule that underlies the decision of this particular case: and it affords, I think, a very good example of the importance of not leaving every man to draw his own conclusions and to work out his own deductions from the few central principles, but of having at hand decisions made deliberately and in general consultation on thorny points, which it requires some firmness of purpose and an immovable moral determination rightly to solve, without being misled by side issues." We have quoted at this length from Mr. Hart, because anything emanating from him must command respectful attention on account of his eminent position and great ability and because he has discussed the matter with such convincing logic as to leave no room for dissentient opinion. Among candid, truth-loving members of our profession we have no fears that the Code of Ethics will be modified; we believe that the preponderating weight of professional opinion throughout this vast land, is decidedly in favor of upholding the code as it now stands, convinced that its rules and decisions laid down for our guidance are the offspring of the profound wisdom and ripe experience of the wisest and best of our predecessors.

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ORIGINAL ARTICLES.

ARTICLE I.

SOME PRACTICAL SUGGESTIONS ON THE TREATMENT OF DIPHTHERIA.

By JOHN E. LOCKRIDGE, M.D., Indianapolis, Indiana.

The few practical remarks I am about to make are in no sense to be regarded as a treatise on diphtheria ; I only desire to put on record some conclusions I have arrived at after an experience of more than 30 years in the management of this much dreaded malady, in the hope that I may aid in some small degree some brother practitioner in a disease so hydra-headed and whose treatment is so multiform.

A little over 30 years ago I took my degree at the Medical College of Virginia, and submitted as my *thesis* an essay on diphtheria for which I was awarded the prize offered for the best treatise on any medical subject. In that essay I took the strongest ground in favor of nitrate of silver as a local application, and the cautious use of mercury as a constitutional remedy in this disease. Both of these remedies were beginning to be strongly discredited by the profession at that time ; and a few years later were almost universally condemned as being deleterious. Within the last decade, however, the bichloride of mercury especially has been strongly advocated by many of our ablest physicians. I will say here that I have never lost confidence in these two remedies, and never ceased to use them in the treatment of the disease in question. The object of these lines is to try to show why, when, how, and *cui bono*, and an honest statement of the results.

I lay great stress on topical applications because I, like many others, believe that the disease is first a local one and prompt resort to abortive local treatment will prevent it from becoming constitutional in most cases ; and I am confident that nitrate of silver is the very best abortive antiphlogistic and alterative that we possess ; and, besides, we have no better germ destroyer that is available. I have seen an unmistakable betterment in the appearance of the throat in too many hundreds of cases in 24 hours after its careful and thorough application to doubt for a moment its absolute efficacy. Before the diphtheria microbe was discovered there were many indications that led to the belief that the disease was constitutional from the first, with local manifestations. In case those affected had any abrasion or sore about the body anywhere, like "stone bruises" on the toes of children who run barefoot, or a blistered surface, these abrasions almost invariably become very painful and coated over with the false membrane. One of the most painful cases of the disease I have ever attended was in a young soldier during the late civil war who had a gunshot flesh wound on his hip, which became coated over with the diphtheritic membrane, accompanied with excruciating pain, fever, and all of the other phenomena of the disease; yet he had no disease whatever in his throat or elsewhere. The disease was epidemic in his vicinity. These local manifestations afford no evidence whatever of a blood, or constitutional origin of the malady; these sores simply afford a favorable *nidus* for the microbes.

When to apply the nitrate of silver: the earlier in the attack the better, of course. In cases where I have the opportunity to make the application inside of 24 hours from the onset, and in which the membrane is still confined to the fauces, I care not how extensively, I always feel sure that I have the case well in hand and can give a favorable prognosis. In case the Schneiderian membrane be already involved also I am in no manner deterred from making the application to the fauces to prevent, if possible, the extension of the membrane into the air passages; but if the latter be involved already, application, of course, is useless.

The *mode* of application is of the utmost importance. I always use the solid stick; any solution is clumsy, uncertain, and inartistic—yes, use the solid stick always, and use it with an artist's touch. In the cases of very fractious and unruly children don't try it at all if you have only 10 or 15 minutes to tarry; but take an hour if necessary and accomplish it by piecemeal; make them gag with the tongue depressor and then quickly get in your work. During the last 20 years at least I am sure that I have never met with a child whose throat I failed to pencil to my satisfaction. Never pencil oftener than once in 24 hours; and I rarely apply more than twice in the same case, in consecutive days. If the membrane does not cease to spread, and the accompanying redness and swelling fail to abate, and the membrane assume a *dead* appearance, then the further application of nitrate of silver will be useless and may be injurious. When the membrane is *dead* it assumes an ashy, shrunken appearance, in contradistinction to the almost pearly white *live* one; the former innocuous and not likely to extend, but the latter vicious, and the ensign of a fierce contest. The caustic should be applied over the entire membrane, and especially the *lower margin*, and not wittingly beyond, since in penciling the entire membrane you will always trench on a sufficient margin of sound tissue, which is to be desired.

In regard to the use of mercury in this disease I need say but little in its commendation at this day, since there is entire accord in the profession as to the germicidal properties of the bichloride at least. In cases of diphtheritic laryngitis and tracheitis I prefer calomel, trusting more to its anaplastic properties. In addition to the properties of the bichloride to anticipate and even to destroy germs in the blood, I have great confidence in its efficacy in faucial diphtheria in the act of swallowing its solution; and for these twin purposes I give from the $\frac{1}{30}$ gr. to $\frac{1}{50}$ gr. in a teaspoonful of water every hour; the former dose representing a wash of a little over $\frac{1}{2000}$ and the latter $\frac{1}{3000}$. I use the same solution with a syringe in case the Schneiderian membrane be involved. In addition to the local treatment just mentioned I use some wash or gargle every 3 or 4 hours, such as chlorate of potash, carbolic acid, glycerine and water, which must be applied with a swab in younger children. In asthenic cases or such as have a tendency that way iron, quinia, and whisky must be used; but in robust children with high fever a resort to aconite even may be demanded.

Now as to the good or bad results of this plan of treatment. In 15 years I have lost just *two* cases; one of these was a girl 16 or 17 years old to whom I was called on the 5th or 6th day of the attack; the membrane had already formed in the larynx, trachea and bronchial tubes, and no treatment medical or surgical could avail anything; the other was a lovely little girl 6 years old to whom I was called early enough, and under my usual treatment the membrane had almost entirely disappeared from the throat by the third day and the case seemed to be doing well when paralysis of the heart suddenly supervened and death occurred in 2 or 3 hours on the fourth day; although I had anticipated such a complication and was giving her iron, quinia, digitalis, and strychnia. I think that it is fair for me to say that in this case there was obstipation of the bowels and it was the third day before we succeeded in overcoming this condition, the treatment of which rendered medication and alimentation almost *nil*. I have had only two cases during this period in which the membrane invaded the air passages in spite of my treatment, and both of these recovered.

I will now as succinctly as possible give the notes of a single case exactly as I took them down at the time, hoping that they will serve to impress my line of treatment on the reader:

July 17, 1893, at 9 A.M., I was called to see Mamie H., 7 years old; pulse 160, temp. 103.5; much pain in swallowing, not much external swelling; right tonsil much swollen and completely covered with the diphtheritic membrane, left tonsilunaffected; bowels costive. ℞.: calomel 4 grs., Dover's powder 5 grs., antikamnia 8 grs.; M. ft. chart. 4; Sig., one every 2 hours; also take $\frac{1}{50}$ gr. bichloride mercury every hour. Applied solid stick nitrate silver over entire membrane, and ordered, ℞.: chl. potash ʒ ss, carbolic acid 10 grs., glycerine ℥ iv, aqua *ad* ℥ iv; M. S., apply every 3 hours on cotton swab. Diet, milk, beer, and wine.

July 18, patient more comfortable; pulse 120, temp. 101.4; bowels well moved; no extension of membrane on right side and tonsil less swollen; but membrane as large as little finger nail on left tonsil. Applied nitrate over left tonsil, also over right one where membrane is not *dead*, continue the wash and bichloride, and 2 grs. quinia *ter in die*; milk, and beer and wine alternately.

July 19, 9 A.M. Patient much better; pulse 112, temp. 99.4; no pain in swallowing; membrane completely absent on left side and fast disappearing on right. ℞.: bichloride mercury $\frac{1}{30}$ gr. every 2 hours, continue other treatment and diet.

July 20, 9 A.M. Patient very comfortable and cheerful; pulse 96, temp. normal; left tonsil clear and a few scattered patches of dead membrane on right; $\frac{1}{30}$ gr. bichloride every 3 or 4 hours until all membrane disappears; 2 grs. quinia night and morning; wash every 4 or 5 hours; same diet, with a taste of chicken.

July 22, 9 P.M. Patient continued to convalesce throughout the 20th and 21st, but awoke this morning with some hoarseness and loss of voice, which grew worse during the day, until now I find her with total loss of voice, heavy breathing, and a harsh croupy cough—diphtheritic laryngitis! Pulse 100, temp. 100; only a few specks of membrane left on right side; tongue foul, bowels costive: ℞.: ℥ss fl ext. ipecac every half hour until emesis occurs, calomel $\frac{1}{2}$ grain every two hours.

July 23, 9 A.M. Patient more comfortable; emesis brought up a large amount of mucous and some membrane; bowels freely moved; pulse 96, temp. 99.5. ℞.: calomel $\frac{1}{2}$ grain every two hours; milk, quinine and whisky.

July 23, 9 P.M. Patient evidently no worse; pulse 92, temp. 100; not much improved in her breathing, no croupy cough, voice in a whisper. ℞.: $\frac{1}{2}$ grain calomel every four hours; quinia and whisky continued.

July 24, 10 A.M. Patient had a very violent croupy and choking up attack last night at 10, requiring for its relief an emetic of ipecac which brought a large amount of phlegm and shreds of the false membrane; she seems now to be quite comfortable; pulse 90, temperature 99.5; breathing natural and no cough whatever; tongue nearly clean; bowels moved several times. ℞.: $\frac{1}{30}$ grain bichloride mercury every two hours, also 2 grains quinia and $\frac{1}{50}$ grain sulph. strychnia 3 times a day; wine, milk and ripe peaches.

July 25, 10.30 A.M. Convalescence fully established, no trouble in last twenty-four hours; pulse 88, temp. 99; breathing natural; no cough at all in last twenty-four hours; voice still in a whisper; some appetite for the first time. ℞.: 2 grains quinia and $\frac{1}{60}$ grain strychnia 3 times a day, also beef, wine and iron, peaches and chicken; discharged.

If the plan of treatment above recommended seems to smack of the routine I have no apology to make, for many of these cases are strikingly alike in the onset at least, barring the type of the disease and the constitution of the patient, which afford much latitude for reflection and judgment. In November, 1892, an epidemic of the disease broke out in the Deaf and Dumb Institution of Indiana, of which institution I have been physician for fifteen years; and although the cases were promptly isolated we had one case the first day, two the second, and three the third. I treated these six cases exactly alike, penciled their throats with the same stick of nit. of silver, gave them bichloride mercury out of the same bottle of solution, and had them use the same gargle; they all recovered *tuto, cito, et jucunde.* These cases were all girls and very similar, except some were worse than others; and while the treatment was routine yet one might maintain the corollary of *specific,* yet no such claim is intended.

ARTICLE II.

A CLINICAL LECTURE ON THE PHYSICS AND DIAGNOSIS OF PLEURAL EFFUSION.

Delivered at the North London Hospital for Consumption, June 21, 1893. By G. A. SUTHERLAND, M.B. Edin., M.R.C.P. Lond., Physician to the Hospital.

GENTLEMEN: In studying the subject of intra-pleural effusion, as it is commonly described in the text-books, one is led to regard the fluid exuded as the active agent which causes displacement of the various thoracic contents and boundaries. For example, such expressions as the following are constantly met with, "the fluid presses upon the lung," "the heart is pushed over to the opposite side," "the diaphragm is pushed down." As a result of this teaching attention is concentrated on the physical signs at the site of the effusion, and these are so variable that the student is puzzled and in many cases no satisfactory explanation is forthcoming. Another method,[1] and as I hope to show you, a more correct one, is to regard the fluid exuded as to a large extent a passive agent, and, while not neglecting the physical signs in its neighborhood, to look also at the active agency in the production of the various changes—namely, the elasticity of the lungs. In considering this question I shall refer to a few familiar points in connection with respiration, which bear directly on the subject. There are three chief factors concerned in the mechanism of respiration: (1) the expansion of the chest wall; (2) the depression of the diaphragm; and (3) the elasticity of the lungs. While the two former are intermittent, the elasticity of the lungs is constantly in action, its tension varying only in degree at the different periods of inspiration and expiration. Under normal conditions the two pleural surfaces are in close apposition, and as the lungs, by virtue of their elasticity, are always trying to pull these two surfaces apart, the result is that the intra-pleural pressure is negative—that is to say, less than the pressure of the atmosphere. If this negative pressure is to be made positive, the elasticity of the lungs must first be completely exhausted. You are also aware that the lungs, by their expansion, exert an opposing influence on each other, and, were this action not equally balanced on the two sides, we should find the mediastinum drawn toward the stronger. Under normal conditions, however, a suction or aspirating force is applied to each side of the mediastinum during inspiration, which is a powerful factor in drawing the blood into the heart and large veins. This force is also due to the elasticity of the lungs.

Passing now from these physiological considerations, let us look at the condition of affairs on the occurrence of pleurisy, premising at the outset that the lungs and pleura have not been impaired by previous disease. The initial stage is a local inflammation, with congestion and loss of tone in the vessels of the part affected, and accompanied by hypersecretion of fluid from the lining cells of the pleura. The elastic force of the pulmonary tissue at once comes into play and it retracts to a certain extent, and the continued action of this force will tend to draw more fluid out of the blood-vessels. Under normal conditions the forces which lead to effusion and those which lead to absorption are equally balanced and the pleural cavity is, in consequence, never overfilled. When inflammation has commenced this equality is destroyed. The onset of the affection is accompanied by diminished movement on the injured side—that is to say, the activity of the intercostal muscles and of the diaphragm is lessened. It has been experimentally shown that if fluid be injected into the pleural cavity of animals it will be rapidly absorbed through the stomata of the parietal pleura if forcible respiration be performed; but if quiet breathing is allowed little or no absorption takes place. In other words, the expansion of the chest wall in forced expiration exerts an aspirating power which is superior to the aspirating power of the lung elasticity, and consequently the fluid is absorbed. The removal of this factor by the diminished movement of the affected side in pleurisy leaves the elastic traction of the lung unopposed. Again, if we consider the action of the sound side in pleural effusion, we notice that the movement is exaggerated and that the expansion of the lung is increased. The balance between the opposing pulmonary forces is therefore disturbed and the elastic tension of the sound lung is increased, while that of the lung on the affected side is diminished. What will happen? The mediastinum and heart will be drawn toward the sound side by the elastic traction of the lung, and the same force, passing through the mediastinum and the affected lung, will tend still further to aspirate fluid into the pleural cavity at the seat of inflammation. We have thus three conditions present which encourage effusion—namely, (1) the elasticity of the lung on the affected side, (2) the diminished movement on the affected side (prevention of absorption), and (3) the elasticity of the sound lung.

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[1] This method is based on the writings of Dr. Douglas Powell (Diseases of the Lungs and Pleura, etc.) and Dr. G. M. Garland (Pneumono-dynamics, 1878).

Let us turn now to the condition of the exuded fluid. All are agreed that this will gravitate to the most dependent part—namely, the posterior and inferior region of the pleural cavity. You will note also that this area lies in the longest diameter of the lung and that the pulmonary tissue occupying it is subjected to greater distension than that in any other part, and consequently we should expect the lung elasticity to come into play here sooner than elsewhere. The books will tell you that the fluid, even while still moderate in amount, exerts pressure all around—on the lung, on the diaphragm and on the chest wall. Suppose it were pressing on the chest wall, the introduction of a trocar ought to be followed by the rapid exit of the fluid; but as you are aware, an aspirator is required to withdraw it. It is no answer to say that when a trocar is used the fluid is kept back by the external atmospheric pressure, for there is atmospheric pressure acting also inside the lung along the still patent bronchi. If you insert a tap in a beer barrel at a level lower than the upper surface of the contents and then remove the vent peg, you naturally expect the contents to run out until the level of the fluid corresponds with the level of the tap. Similarly, if you insert a trocar in a pleural effusion, with free entrance of air through the patent bronchus (vent hole), you naturally expect the fluid to run out; but, with the exception of a slight flow during expiration, due to increased intra-pulmonary pressure at that period of respiration, little or none comes away. We must, therefore, look for some stronger force which keeps the fluid in its position in opposition to the laws of hydrostatics. Again, were this fluid pressure present, the chest wall ought to bulge, especially opposite the intercostal spaces, but, as a matter of clinical experience we do not find that this occurs. The intercostal spaces are not bulging, and although the circumference of the chest wall is slightly increased on the affected side, this is mainly due to the resiliency of the ribs there, while the most marked increase in circumference is on the sound side. As regards the diaphragm, it is not depressed; but, on the contrary, in many cases it is elevated, a condition which you will see most marked in cases occurring among children. If, then, the effusion is not pressing directly on the surrounding structures it must be held in suspense by some strong force, and this is what actually occurs, the force in question being the elastic tension of the lung. It is this force which, in addition, raises the diaphragm, holds in the intercostal spaces and prevents the fluid from flowing out on simple puncture of the chest. So far we have been speaking of the condition when the effusion is moderate in amount. Let us now follow out the alterations as it increases. I have already stated that before the intro-pleural pressure can become positive it is necessary for the elasticity of the lungs to be exhausted, but in the case of a fluid effusion a slight qualification is required. As the fluid increases in amount the elasticity of the lung is lessened by the retraction of the pulmonary tissue. At the same time the fluid, by virtue of its weight, exercises an appreciable negative pressure on the retracting lung, so that finally a point is reached when these two opposing forces are equal, and any further effusion will at once exert a positive pressure on the lung. At this stage we begin to have pressure symptoms, such as compression of one lung or of both lungs, depression of the diaphragm and bulging of the chest wall, and the greater the increase of fluid the more marked will those symptoms be. You will perceive, then, that there are two distinct stages in pleural effusion, the first while the pressure of the fluid is negative and it is held in suspense by the elasticity of the lungs, and the second when the pressure of the fluid is positive, the lung elasticity having been exhausted. In the first stage we may have various displacements owing to the elastic tension of the lungs drawing the organs out of their normal position ; and in the second stage displacements are due to the pressure of the fluid pushing the organs out of their normal position.

In considering the question of the physical signs of fluid in the pleural cavity I shall not lay much stress on the evidence to be gathered over the site of the effusion, for you will find this given very fully in the text-books, but shall direct your attention more particularly to the condition of the lungs (active factors) and the displacements of the heart and diaphragm (passive factors). The position which the lung on the affected side takes up is very important. It retracts first of all from the posterior surface of the diaphragm and moves upward ; then, as more fluid is exuded, it passes toward the mediastinum, the posterior part lying in the hollow along the spine. This is not the result of any fluid pressure, but is the natural position of the lung when collapsed, as you can see for yourselves on opening the cadaver or on examining the lungs of an infant which has never breathed, and is in accordance with the laws of elastic bodies, which tend to assume a definite form when extension is removed. In acquiring your knowledge of the physical signs of pleuritic effusion I strongly advise you to take every opportunity of studying these in children, for in them the chest walls are comparatively thin, and you can therefore make out distinctions of percussion and auscultation which are not perceptible through the thicker chest walls of an adult. In children, also, the lung elasticity is great, and the results of this elasticity which I am about to describe are more clearly shown than in adults.

For the sake of clearness let us take a case of moderate left-sided effusion, the fluid extending half-way up the scapula. In percussing out the lung on the affected side you will find that the shape of the lower margin is altered, and that instead of sloping down from before backward its highest level is now situated slightly behind the posterior axillary line. From this it passes downward in front toward the sternum and downward behind to the spinal column, forming an irregular line which is known as the S-shaped curve. In tracing this out you must percuss lightly from above downward and mark the points at which resonance entirely ceases and absolute dullness or flatness commences. By connecting these points you will form the S-shaped curve ; above it you have the retracted lung and below it you have the fluid effused. Now if we hold that the effusion is pressing up the lung I do not know of any reason why the upper surface of the fluid should assume this fantastic shape, but if we admit that the lung is holding up the effusion you will understand at once that the outline of the fluid follows exactly that of the retracting lung and thus the S-shaped curve is produced. This curve is present during the whole of the first stage of pleuritic effusion, its shape and situation varying with the amount of fluid. The posterior part of the curve passes downward and forms an angle with the spinal column. The area included in this angle is one of great importance, and was called by Dr. Garland "the dull triangle," the third side being formed by an imaginary line drawn from the summit of the curve perpendicularly to the vertebral column. On percussing this area, proceeding from the spine outward in horizontal lines, you will find that while there is dullness for an inch and a half or two inches there is not a complete absence of resonance until you cross the curved line. The reason is that beneath the dull area lies the retracted but not airless lung, while further out there is the fluid immediately below the chest wall. On auscultation over the dull triangle the breathing is of the blowing or bronchial type and vocal resonance is quite audible, while over the fluid effusion at the same level both of these are much diminished or are entirely absent. The importance of these signs in diagnosing between pleuritic effusion and lobar pneumonia is very great, for in the latter there are no alterations in the percussion, the breathing and the vocal resonance such as I have described. The audible breathing along the spinal column is mentioned in the text-books, with the explanation that it is transmitted from the opposite lung, but the reason why it should also be changed from the vesicular into the bronchial type by osseous conduction is not stated. On the other hand, it is easy to see that the breath sounds are transmitted better through a collapsed part of lung than through a mass of fluid. Another part of the chest where important information as to the state of the lung beneath can be learned is that lying immediately below the clavicle on the affected side. On percussion here a tympanitic note is elicited, varying in pitch with the extent of the pulmonary retraction. This is known as "Skodaic resonance," and it may be present over a considerable part of the chest wall anteriorly and is also sometimes found in the supra-spinous fossa. The cause usually ascribed is the diminished tension in the retracting lung.

Now let us consider the lower part of the affected lung outside the dull triangle of Dr. Garland. In some cases, and frequently in children, you will find that the percussion note over the whole of the lung is dulled, and that bronchial breathing is present, and this condition points to extreme retraction, the lung probably being airless. More commonly those signs are limited to the part of the lung immediately above the effusion. The area over which these sounds are heard does not usually extend for more than an inch above the level of the effusion, and it may be characterized still further by the presence of crepitations, or friction, or both. The friction sounds are of course due to the fact that the inflammation of the pleura often extends beyond the limits of the exudation. The other conditions are frequently ascribed to collapse of the lung at that part, the theory being as stated by Dr. Hilton Fagge, that "whenever even a small part of the lung fails to be acted on by the forces which are concerned in inspiration, its elasticity brings about a total collapse of its substance, notwithstanding that the tubes which serve it may be patent." Another explanation is that owing to the obstruction to the circulation through the retracted lung there is a certain amount of hypostatic congestion which shows itself in the layer of solid tissue at the lower border of the lung, and this I believe to be the correct one. Dr. Hilton Fagge found his theory useful in explaining the fact that a simple fluid effusion does not follow the laws of gravity and change its level with a change in position by the patient, a point which has never been satisfactorily cleared up by the supporters of the view that the fluid is pressing on the lung. He wrote,[1] "If a certain part of the lung is rendered altogether airless by pleuritic effusion it is easy to see how the fluid may, as it were, be held up in a fixed position in opposition to the force of gravity." Omitting any notice of the novel laws of elasticity which this theory involves, I think it is easy to see that if a certain part of the lung is rendered altogether airless its tendency will be to sink to the bottom of the fluid and not to be found at the top, and far less to be holding up a mass of fluid against the force of gravity. By the explanation which I gave you we also found that there was a layer of solid lung immediately above the level of the fluid. This will be kept in position by the elasticity of the lung, just as the fluid is. If, however, the area of hypostatic congestion is increased, so that a considerable portion of the lower lobe is involved, the weight of the solid part will eventually overcome the elasticity of the remainder and the lobe will sink in the fluid, which becomes spread out around it. This stage is shown clinically by the presence over the fluid of loud bronchial or tubular breathing, with increase of vocal resonance, the signs in short, of a basal pneumonia, which are conducted through the thin layer of fluid.[1]

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[1] Principles and Practice of Medicine, 1888; vol. ii., p. 167.

Let us next consider the effect of a moderate pleuritic effusion on the diaphragm. On the pressure theory the weight of fluid will at once press the diaphragm in the line of least resistance—that is, downward—and an early symptom ought to be bulging below the costal margin. Also, as the resistance on the left side is less than that on the right, owing to the presence of the liver in the latter and the stomach in the former, we should naturally expect that diaphragmatic displacement would be manifest earlier in the case of a left-sided effusion than in a right one. If you test these points clinically you will not find them supported by any evidence. On the contrary, bulging below the ribs is a late symptom of pleuritic effusion, and points to the presence of a very large amount of fluid, while diaphragmatic depression is manifested sooner when the exudation is in the right pleura than when it is in the left. Some other explanation than that of pressure must therefore be looked for, and this is to be found in the elasticity of the lungs. In the case of a right-sided effusion the elastic retraction of the lung is opposed by three forces: (1) the weight of the fluid, (2) the action of the diaphragm and (3) the weight of the liver. If the patient is in the sitting position these three all act in the same direction—that is, downward. When the effusion is on the left side, the lung has only two of these forces to support. the weight of the liver being absent. It follows that the elastic force of the lung will be balanced by these negative forces more quickly on the right side than on the left, and any subsequent increase of fluid will be manifested by a sinking downward of the diaphragm and liver, while with the same amount of effusion on the left side there is no displacement. If, then, in a case of right-sided pleural effusion you find on percussion and palpation that the liver is depressed you will know that the intra-pleural pressure is positive and that the amount of exudation is therefore great.

Now, what information is to be gathered as to a left-sided effusion by observing the effect of lung elasticity on the diaphragm? The position of the diaphragm is here ascertained clinically by percussion of the stomach, the upper border of which follows the movements of the diaphragm. In the normal condition as you are aware, a portion of the stomach lies behind the lower and anterior part of the chest wall on the left side and can be mapped out as a concave area, the concavity of which is directed downward. This is known as the semilunar space of Traube, who first called attention to its importance in the diagnosis of pleuritic effusion. In the early stage the action of the diaphragm is diminished, while the elasticity of the lung is still strong. The result is that the diaphragm is drawn up into the chest even higher than it is during normal expiration, and this fact is learned clinically by an extension upward of the tympanitic resonance which is heard on percussion over the semilunar space. This is a sign of great importance in distinguishing between pneumonia and pleural effusion. It is not found in the former or in any acute pulmonary disease save fluid effusion in the pleura. It is, of course, a well-marked sign in advanced contraction of the lung due to pleuritic adhesions or to fibroid changes of long duration, and these must be carefully excluded before any conclusions are drawn. You must also see that no increased intra-abdominal pressure is present, which would push the stomach upward. As the fluid increases in amount it passes to the front, and the semilunar space is diminished in extent, until, finally, when the exudation is very great, the diaphragm and stomach are depressed and the tympanitic note of the semilunar space is entirely obliterated.

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[1] Clinical Lecture on Pleurisy with Effusion, by Dr. Broadbent. The Lancet, May 24, 1884.

The alterations in the physical signs over the sound lung are not directly of great value. The measurement of the unaffected side of the chest wall usually shows a slight increase, which may be appreciable if quiet respiration is present, and which will be greater according to the amount of dyspnœa. The breath sounds are of the puerile type—that is to say, harsh, vesicular, with prolonged expiration. Of more importance are the results of the unopposed action of this lung on the mediastinum and its contents. Instead of the equally balanced traction on the two sides of the mediastinum by the expansion of the lungs, and the consequent filling of the heart and large veins with blood, there now exists a single force tending to draw the mediastinum as a whole toward it—namely, the unopposed traction of the sound lung. The heart must therefore depend on its own action for emptying the veins as well as for filling the arteries, and this leads frequently to considerable cardiac embarrassment, as shown by a weak and irregular pulse. I do not wish to ignore another factor here, on which much stress is often laid—namely, the impeded circulation through the collapsed lung; but I think this is balanced to a certain extent as regards the heart by the freer movement of blood through the sound lung. In considering this question of circulatory disturbance a third factor of great importance comes in—namely, the displacement of the heart itself. This is usually ascribed in the textbooks to the pressure of the effused fluid; but I wish to call your attention to the fact that there may be cardiac displacement when the effusion is still moderate in amount—at a time when the fluid is not in contact with the heart but separated from it by collapsible pulmonary tissue. It is difficult to see how any actual pressure can be exerted under these circumstances. We have already seen that the lung on the sound side gains in elasticity by the loss on the affected side, and that consequently the mediastinum is drawn toward the sound side. This action is directly proportional to the amount of fluid effused, and therefore the cardiac displacement is dependent on (1) the quantity of fluid present and (2) the amount of elasticity in the sound lung. As the elasticity of the lung in early life is greater than in later years you will expect to find the cardiac displacement manifest at an earlier period in the case of children, and this is what actually occurs. We have, unfortunately, no very exact clinical means at our disposal for estimating accurately a small amount of cardiac displacement. By palpation we ascertain the position of the apex beat and by percussion we determine the lateral boundaries of the heart. We then note whether these correspond with the normal conditions, and, what is of more importance, we observe, as the illness proceeds, whether there is any change in the position of the heart on repeated examination. The amount of pulmonary tissue covering the heart varies to such an extent that accurate measurements are extremely difficult and in the case of adults they are almost impossible. Deviations of less than half an inch are not, therefore, of much clinical value. Another source of fallacy lies in the fact that the right side of the heart may be overfilled and the percussion dullness therefore increased to the right of the sternum. It is well known that a left-sided effusion produces more cardiac displacement than a right-sided one of equal extent. On the pressure theory this is difficult to explain, and one distinguished physician[1] has solved the difficulty by denying the fact and has maintained that it is really over-distension of the right ventricle which is mistaken for cardiac displacement. This explanation has not been generally accepted, but the clinical difficulty is easily understood when we regard the elastic traction of the sound lung as the cause of cardiac displacement. The movement of the heart which is of importance clinically is in the lateral direction. Now the heart is situated normally to the left of the middle line. If, then, we compare the amount of elastic traction which can be brought to bear on the heart, we find that this is greater on the right side than on the left, because there is more lung tissue between the heart and the right side of the chest wall than between the heart and the left side of the chest wall. Consequently in the case of a moderate effusion on the left side the cardiac displacement will be manifest sooner than if the effusion is on the right side, and even when the fluid increases and positive pressure is brought to bear on the heart the effect of the lung elasticity in the early stages will still be apparent.

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[1] Dr. Moxon, The Lancet, Jan. 12, 1884.

I have not hitherto stated definitely the signs which mark the period of effusion when the intra-pleural pressure becomes positive. Dr. Douglas Powell[1] considers that this stage is reached if, when the patient is in the sitting position, the absolute dullness extends above the third rib anteriorly and the Skodaic resonance is lost. This, as you will perceive, indicates the presence of a very large amount of fluid. Direct evidence of positive intra-pleural pressure is to be found as already stated, in the depression of the liver on the right side and in the obliteration of the semilunar space of Traube on the left, and in a rush of fluid from the pleural cavity on the introduction of a trocar. The first stage, however, passes so gradually into the second that it is extremely difficult clinically to diagnose the exact period; but a marked amount of positive pressure is quickly followed by an increase in the symptoms present—such as breathlessness, faintness, and weak cardiac action.—*Lancet.*

ARTICLE III.

THE COMPARATIVE VALUE OF TRACHEOTOMY AND INTUBATION FOR THE RELIEF OF ACUTE LARYNGEAL STENOSIS IN CHILDREN.

By Lewis S. Pilcher, M.D.

Of all the causes which may possibly determine dyspnœa of sufficient gravity to require surgical interference for its relief, the accumulation of a membraniform exudate upon the surface of the laryngeal mucous lining is the most frequent. When the accumulation of such a laryngeal exudate is secondary to, or synchronous with, the same formation within the pharynx or upon the tonsils, early recognition of the cause of the laryngeal symptoms is made; when the earliest manifestation of the exudate is within the larynx, a not infrequent occurrence, the condition cannot be distinguished with certainty from that attending acute catarrhal laryngitis in its severer forms; it is only when, in the progress of the case, membraniform fragments become detached and are expectorated, or a membraniform exudate forms in the pharynx or fauces also, or the presence of the exudate is demonstrated by incising the trachea, that an absolute diagnosis can be made. It is a common error to assume that severe and continuous dyspnœa arising in the course of acute inflammatory affections of the larynx is due to a membraniform exudate, and to denominate the case "membranous croup." This assumption has given rise to many erroneous conclusions as to the value of medicinal treatment in cases of so-called membranous croup, for the catarrhal inflammation is much more amenable to medicinal agents than is the exudative. As long, however, as any doubt about the exact character of the case exists, it is wiser, from the standpoint of treatment to assume that the more intractable disease is present and to guide the treatment accordingly. Such a principle of action will lead to an earlier resort to surgical interference than would otherwise be the case.

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[1] Loc. cit.

The question of chief importance to the physician who is charged with the responsibility of the care of an acute, possibly exudative, laryngitis is, what degree of urgency must the suffocative symptoms attain to justify him in resorting to surgical measures for its relief? He certainly should not wait until the patient is *in extremis*, nor should he be precipitate in action, for spontaneous recovery from very threatening conditions is not rare. At the same time he is not to consider so much the idea as to whether the patient may not possibly recover under medicinal treatment alone as he is to decide whether his chances of recovery will be made greater by the operative procedure.

Loss of voice, frequent thin, metallic, muffled cough, difficult inspiration and prolonged expiration, the suprasternal and epigastric tissues sinking in at each inspiratory effort, great restlessness, suffusion of the face with bluish lips—these are symptoms that, if continued, will produce speedy exhaustion; but in many cases of acute catarrhal laryngitis much of this respiratory difficulty is due to glottic spasm, which may be controlled by treatment or may spontaneously disappear. If the severe symptoms of dyspnœa are intermittent, if they are lessened in severity and in frequency by treatment, if the general prostration is not great, and if the lethargy denoting advancing defective oxidation of the blood is not marked, surgical interference should be deferred.

When, on the other hand, the dyspnœa is continuous and is gradually and steadily increasing despite treatment, especially when symptoms of exhaustion are developing—as shown by pallor of the face with cold perspiration—and when the benumbing effect of defective aëration of the blood is producing its anæsthetic effect—as shown by tendency to lethargy replacing previous restlessness—then operation should be resorted to without further delay.

Nor should operation be delayed until the suffocative struggles are extreme or the strength of the patient is exhausted by prolonged dyspnœa, or the narcosis of defective blood oxygenation is far advanced. The progress of a case from the first inception of symptoms of hoarseness and slight embarrassment of respiration to the termination in death is usually rapid. Out of 1,760 cases of fatal croup in this city of Brooklyn, in children less than five years of age, the data concerning which were gathered and analyzed by myself, 57 per cent. died within three days from the onset of the croupy symptoms, 159 died within twenty-four hours, and 22 died within twelve hours. Much time for deliberation is therefore not to be relied upon. As to contraindications to operation, there are none when the one indication—laryngeal stenosis to such a degree as to be a source of danger either directly or indirectly—is present.

Coexisting pneumonia, bronchitis, exhaustion, even apparent death, instead of contraindicating, do the more distinctly indicate it. These and other complications render the prognosis more grave, but do not justify a refusal to operate. The literature of the subject abounds in instances in which, despite the gravest complications, recovery has been secured.

In any given case the time for operative interference having arrived, what operation shall be done? Two resources are now at the command of the surgeon, (1) the introduction of a suitable metallic tube into the laryngeal canal through the mouth without making any surgical wound—intubation as devised and perfected by O'Dwyer, (2) the opening of the trachea below the larynx through an incision made in the neck and the establishment of a new channel for respiration by the use of a suitable tube inserted through the new opening thus made—tracheotomy.

In answering this question for myself, I do still give a positive and marked preference to tracheotomy. While not unmindful of the good features of intubation, I have never felt myself justified in advising it when tracheotomy was practicable. My reasons for this faith and practice are as follows:

In the vast majority of instances in which acute stenosis of the larynx of sufficient degree to call for operative interference occurs in children, the stenosis is due to the accumulation within the larynx of a diphtheritic exudate. While it is not to be denied that other causes than diphtheria may produce, in rare instances, a laryngitis with pellicular exudate, nevertheless such cases occur so rarely in current experience, that in any general discussion they may be practically ignored. For over thirty years diphtheria has prevailed as an endemic in New York and Brooklyn. Notwithstanding all our recent additions to knowledge as regards its nature, its propagation and its treatment; notwithstanding the great advances in sanitation which have been made in these cities during the period in question, diphtheria still remains as one of the chief causes of death in these cities. In the city of Brooklyn, during the three months immediately preceding the preparation of this paper, 129 deaths from diphtheria were reported. The mortality from the same disease in New York is about twice that of Brooklyn. With such a widespread continuous dissemination of the diphtheritic poison in these communities, it is therefore impossible in any case of exudative laryngitis to absolutely exclude diphtheritic infection. In a study of the relations of exudative laryngitis to diphtheria in the city of Brooklyn during a period of some years, which I made some fifteen years ago, I was able to demonstrate a very remarkable relation between the two diseases, the rise and fall of the mortality line of the two diseases through the years presenting much uniformity. In addition to this, however, abundant personal clinical observation has often demonstrated to me that the symptoms tabulated by systematic writers for establishing a differential diagnosis between diphtheritic and non-diphtheritic laryngitis are entirely unreliable and their importance quite imaginary.

It has again and again occurred to me to see children who have rapidly developed extreme laryngeal stenosis without any preceding or concomitant symptoms of diphtheria, but in whom, their lives having been prolonged by tracheotomy, the development of all the general and local signs of diphtheria later became pronounced. Had the stenosis been unrelieved these cases would all have died without ever having developed the ordinary symptoms of diphtheria. For more than fifteen years, therefore, I have claimed and found that every case of exudative laryngitis is presumably diphtheritic in its character, and that all cases should, from the first, receive the treatment appropriate to the diphtheritic condition.

I have said this much with relation to diphtheria and acute laryngeal stenosis in children because, to my mind, a recognition of their identity is a point of prime importance in influencing a choice as to operative measures for the relief of the stenosis. The laryngeal obstruction is but a part of a general infective disease, the effects of which are to be guarded against while the immediate local emergency is provided for. This, therefore, is the touchstone which I would use in determining the relative merit of the two procedures under discussion: Granted, that both equally relieve this stenosis of the larynx; which of the two is best adapted to assist the system in its struggles against the general infection by which it is threatened? The answer to this question involves the three points of blood aëration, of local cleansing or antisepsis and of general nutrition.

1. *Blood Aëration.*—Abundant experience has shown that the intralaryngeal tube of O'Dwyer will usually admit with sufficient freedom all the air required for the purposes of respiration. Further, all the air which passes through it into the trachea is necessarily warm and moist, so that there is less danger of the accumulation within the trachea below it of clumps of inspissated secretion that may block it up, while also the narrowness of its lumen increases the expulsive force of the cough, as long as the lumen remains unobstructed. For the escape of membranous masses of any size from the trachea it is not well adapted. In a very considerable proportion of cases of acute laryngeal stenosis, the presence of such masses within the trachea complicates the later course of the case and, not unfrequently, determines crises of great intensity as they become detached. Unfortunately, as long as the primary symptoms of acute stenosis dominate the scene, there is no means whereby a judgment can be formed as to the later presence or absence of such a complication, so that the judicious surgeon would, in all cases, be led to choose, other things being equal, that method of relief which would enable him the most readily to cope with this complication should it arise.

Such a crisis may also arise at the very moment of the introduction of the intralaryngeal tube, since masses of the exudate may be stripped up by it and pushed before it as it is introduced, sufficiently to immediately and absolutely block the trachea. That this danger is not merely theoretical is attested by many published cases in which immediate death has followed the introduction of the tube. It has been usual to say that in such cases tracheotomy still remains as a possible resource by means of which the patient may yet be rescued from death Practically, however, this is not so. It is too late for tracheotomy. The fatal result can rarely be averted when this accident has occurred by the opening of the trachea, however expeditiously it may be done.

At this juncture it may not be amiss to call attention to the fact that in general tracheotomy done as a secondary resort in cases which have been primarily intubated has proven itself a very unsatisfactory procedure, the proportion of ultimate recoveries secured by it having been very small. Thus of 18 such cases subjected to secondary tracheotomy in the service of Thiersch at Leipsic, 1888, all died (Urban, Annals of Surgery, 1890, xii., p. 362); and of 57 such cases operated on in the Boston City Hospital (Lovett, Annals of Surgery, 1892, xvi., 369) 52 died. When these results are compared with the average results which attend primary tracheotomy—thirty per cent. of recoveries—it is seen that the patients who, after having been intubated, develop later renewed dyspnœa calling for relief, form what may be called a selected class of bad cases in which operative interference of any kind promises but little, still in a small proportion even of such cases tracheotomy has still succeeded in preserving life. Nevertheless the surgeon who is choosing a means of relief for acute diphtheritic laryngeal stenosis must realize that he has practically but one opportunity of choice. Remembering this, and being awake to the possible requirements for the ready escape of exfoliating membrane later in the course of the case, most surgeons will feel it their duty at first to freely open the trachea from without at some point below the isthmus of the thyroid gland

2. *Local Cleansing or Antisepsis.*—In diphtheria of the fauces, pharynx and nares the importance of local cleansing and antisepsis is well recognized; much of therapeutic effort is very properly directed toward preventing the accumulation of infective material in the affected localities and thus diminishing the septicæmia resulting from absorption of the products of its decomposition. A further danger of systemic infection exists in the fact that the inspired air must become more or less charged with offensive and septic material, if adequate disinfection of the upper respiratory tract is neglected, and thus a foul and contaminated air be continuously supplied to the air cells below, with, in not a few cases, the additional burden of infective material of sufficient virulence to kindle septic inflammation of the lung tissue itself.

Whatever is true of the nares, and fauces and pharynx in respect of local sepsis is equally true of the larynx and trachea when the seat of the diphtheritic exudate. The surgeon who is in the habit of opening the trachea in these cases has many opportunities of seeing the accumulations of pultaceous material, muco-pus and membranous debris that form within the trachea and contaminate the respiratory current. One of the marked advantages that attends properly performed tracheotomy is the ready removal of this material, which often abundantly wells forth as soon as the trachea is incised. In the early days of such a case the ready escape of tracheal and bronchial secretions is facilitated by the external incision, and by the use of a tube with as large a lumen as the size of the trachea will easily admit. Through this tube the easy ingress to the lungs of abundant pure air also is assured, which may be warmed and moistened according to the judgment of the attendant. The air may be medicated by sprays or by admixture with oxygen gas; the tracheal mucous membrane may be treated by instillations of medicated liquids or may be swabbed out with proper sponges if need be. These opportunities and advantages are not imaginary nor exceptional, but they are all of positive value, and of frequent resort to the surgeon who is fully equipped and ready for his work. They are of sufficient value in many cases, I am persuaded, to turn the trembling scale of fate toward life instead of death, and therefore are ever to be given serious consideration when a choice is to be made of an operative attempt to relieve acute laryngeal stenosis of diphtheritic origin. They must all be sacrificed if intubation is chosen.

3. *General Nutrition.*—Laryngeal diphtheria differs in no respect from other forms of diphtheria in the importance which attaches to feeding and stimulation in its management. The difficulties which attend the administration of proper food and stimulus are often great at best; the presence of a rigid metallic tube in the larynx, with its enlarged upper extremity projecting at the base of the epiglottis would presumably interfere still more with deglutition. According to O'Dwyer (Ref. H'db'k Med. Sci., iv., p. 420, art. Intubation), if the mobility of the epiglottis be very much crippled by inflammatory thickening and the deposit of pseudo-membrane, the deglutition of fluids will be difficult with any form of tube in the larynx; if, on the contrary, the epiglottis be comparatively healthy, which is not uncommon, fluids will be swallowed with much greater ease. As a rule, when intubated patients can be induced to take solid or semi-solid food, it is swallowed with comparative ease from the beginning and the ability to swallow fluids increases with time. This, perhaps, is the most favorable presentation of the relations of intubation to deglutition that can be made, and I have taken pleasure in giving it in the words of the author of the procedure. If I can form an opinion from the published experience in intubation that has come to my knowledge, I should judge that it is somewhat optimistic, and that in general the embarrassments of deglutition that attend the presence of a tube in the larynx are quite serious, and that they often form a decided difficulty in the after management of an intubated case. Certainly difficulty of deglutition is a sufficiently pronounced and direct result of intubation to require to be fully taken into account by the surgeon when forming his judgment as to the procedure which will best enable him to avert the danger of diphtheria of the larynx.

On the other hand deglutition is not interfered with by the presence of a cannula in the trachea introduced through an external incision.

In each of the three important particulars that have thus been rapidly reviewed, viz., blood aëration, local antisepsis, and general nutrition, it has seemed to appear that in each, important advantages in cases of acute diphtheritic stenosis of the larynx attach to the use of tubes inserted from without into the trachea through a wound in the neck over the use of tubes inserted into the larynx through the mouth and pharynx.

Fully realizing that it is quite possible for one who has become prepossessed by the claims of one line of procedure to be unable to give sufficient weight to the merits of a different procedure, I have for some years been waiting for the verdict which the accumulated experience of many workers might give as to whether the apparent advantages of tracheotomy which I have enumerated were imaginary or real. If, as the result of actual practice, intubation is found to secure as large a proportion of recoveries as have resulted by the older and bloody method, then the theoretical objections must be acknowledged as of no weight. It is difficult, however, to make a proper comparison of results owing to the possibilities of differences in the character of the cases submitted to the two different procedures. It is undeniable that intubation is much more likely to be resorted to in cases of less critical nature than would be tracheotomy. The suspicion of this fact is likely to vitiate for purposes of comparison all the general statistics that may be accumulated as to the results of intubation. I accept without question, however, the statistics of O'Dwyer, who states that he has only resorted to intubation as a last resort in cases which he was convinced would die if not relieved. Limiting himself to such cases, he wrote in 1888 that nevertheless his recoveries amounted to 24 per cent. of the cases operated. Less favorable, however, has been the experience of the surgeons of the Boston City Hospital, who, out of 392 cases that were intubated, secured 20.41 per cent. of recoveries. Less favorable yet was the Leipsic experience, where out of 52 cases of intubation but 3 recovered.

These results are decidedly less favorable than those which have hitherto been secured by tracheotomy. In 1887 Lovett and Monroe compiled from all sources, excluding groups less than five in number, 21,853 cases of tracheotomy for croup, of whom 6,135 recovered, that is to say, 28 per cent. My own personal statistics give a better result yet, since out of 66 tracheotomies for diphtheritic croup, in all of which operation was resorted to only when the stenosis had become extreme, 22 recoveries have been secured, 33⅓ per cent.

Dr. O'Dwyer, in the recent Academy of Medicine discussion, stated that out of his second and third hundred of intubation cases, 57 had recovered, a percentage of 28.5. One-fourth of these cases were unde two years of age.

A similar statistical result will be reported this evening by Dr. McNaughton, who within four years has subjected 142 cases to intubation, of which 42,or 29.5 per cent. have recovered. The statistical argument becomes very much mixed by reason of such varying results. No reliable conclusion can be drawn from them as to the comparative merits of the different procedures, and one is driven back to that much more satisfactory ground for judgment to be found in a careful study into the pathological conditions to be combatted, the vital indications presented in individual cases and the relative perfection with which a proposed procedure will meet the one and fulfill the other. The more important points to be considered in such a study I have already passed in review. The conclusion seems to me to be a just one that intubation answers the indications for surgical interference when a diphtheritic exudate has formed within the larynx and trachea much less perfectly than does tracheotomy, and that therefore as a rule it should not be considered as a substitute for tracheotomy in such cases. I do not wish to gloss over in any degree the peculiar dangers and disadvantages that attach to tracheotomy. They have been thoroughly studied ; they are well understood ; in the great majority of cases they can be overcome. He who attempts the operation should have operative skill and familiarity with his tools ; coolness, judgment and anatomical knowledge are essential : there is a tube to be kept clean ; there is a wound to be taken care of ; the respiratory short circuit that has been established demands special precautions to make it harmless ; the pressure effects of long retained cannulæ are to be guarded against and in some cases granulomata or disorders of the laryngeal muscles render difficult the final suppression of the tube. These are all open plainly-declared difficulties, which, if recognized and provided against, can be reduced to such a minimum as regards their prejudicial effects, as to be rendered of but little weight by the side of the great advantages in other respects which the external incision offers.

Nevertheless, it is undeniable that intubation has supplanted tracheotomy to a very considerable extent in this country during the past few years. The natural shrinking which mankind in general, including even menbers of the medical profession as a rule, have to the infliction of surgical wounds, has in the past, and will always continue to make the operation of tracheotomy the last resort which will be accepted for the relief of croup, except in institutions organized upon a surgical basis in which the operation is established as a matter of routine. In general I am persuaded that in future the very considerable prospect of relief and ultimate recovery which intubation can promise, although distinctly inferior to that held out by tracheotomy, will cause the non-bloody procedure to be chosen, the aversion to the surgical wound being the controlling reason for making the choice. A larger proportion of cases will receive operative help of some kind, and many lives will for that reason be saved, which, if the bloody operation were the only resource would otherwise have been allowed to perish. This is well illustrated by our Brooklyn experience. In this city I believe that it has been my lot to be called upon to do tracheotomy for the relief of croup in a considerable proportion of the cases that have sought surgical relief, and yet, during the seventeen years during which I have been operating, I have been called upon to do the operation but 66 times, notwithstanding the deaths from croup in our city during this period have amounted to between four and five hundred every year. On the other hand, during the past four years, Dr. McNaughton has been called upon to intubate 142 times. He has been instrumental in saving 42 lives in four years; I, but 22 in seventeen years, notwithstanding 33⅓ per cent. of my cases recovered, and but 29½ per cent. of his.

A very large proportion of croup cases occurs among people whose home conditions are such as to make it impossible for the peculiar cares which tracheotomy requires to be adequately given to the sufferer. Such cases, if they must be treated at home, have a better chance if subjected to intubation. Again, in general practice, all patients cannot command the skilled surgical attendance which is required if the full benefits of tracheotomy are to be realized. If one skilled in intubation is accessible for such a patient, intubation should be preferred.

The positive advantages which attach to tracheotomy over intubation, when the adjuncts required to obtain the full benefits of tracheotomy are available, are so great that I venture to urge now the importance, since diphtheria may be expected to continue to prevail in these cities indefinitely, of providing and fully equipping at conveniently placed stations, preferably in connection with already existing hospitals, isolation wards for the special reception and care of patients suffering from laryngeal diphtheria. Such croup pavilions should be maintained at the public expense, just as our ambulances are at present, while the responsibility of manning and directing the work in them should be delegated to the hospitals in connection with which they are established. These pavilions should command the confidence of the medical profession and of the public, and to them should at once be brought every child who develops laryngeal diphtheria, whose home conditions are not such as to enable him to command every possible resource for relief. It is not too much to hope that, if such a plan was adopted in Brooklyn, a very considerable proportion of the 500 or more deaths from croup which occur annually in this city would be averted. I am inclined to think, also, that in such properly organized and adequately equipped institutions, tracheotomy would prove to be more efficient in saving life than would intubation.— *Brooklyn Medical Journal.*

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SELECTIONS.

THE TREATMENT OF STRICTURE OF THE URETHRA BY ELECTRICITY.

By C. Mansell Moullin, F.R.C.S. England, M.D. Oxon, etc., Surgeon to the London Hospital.

The treatment of stricture of the urethra by the application of weak electric currents seems to have lost rather than to have gained in favor during the past few years. The majority of the profession do not practice it; many of those who tried it at first have given it up, partly perhaps on account of the elaborate apparatus required, but chiefly because they did not find in it any great advantage over other methods; a few are still enthusiastic in its support. The statements made about it at first were too favorable and now it is suffering from, the natural reaction. The risk is that the pendulum may be allowed to swing back too far and that the method, which has its uses, may be unfairly neglected because it cannot do all that was promised for it by its advocates. My own experience of it, though it extends now over some years, does not embrace a very large number of completed cases, only twenty courses of treatment occurring in eighteen patients; but as special care was taken to define the conditions under which it was tried, the results may, I think, be worth recording. I very soon found that it was no use applying electricity to all cases indiscriminately unless the electrodes were employed as ordinary bougies. Strictures, to say nothing of the patients in whom they occur, differ widely from each other. In some there is a cicatrix, the mucous lining having been destroyed at some spot by suppuration; in others the mucous membrane is intact so far as the surface is concerned, but is thickened, indurated and surrounded by a dense irregular mass of lymph. Not unfrequently both of these conditions are present, and in nearly all the contraction is made infinitely worse, as a rule, just at the time when the case presents itself for treatment, by the addition of congestion and muscular spasm. Unless these various elements could be separated from each other and the action of the current tested upon each by itself it seemed to me impossible to say whether any given stricture would be benefited or not. Some strictures as a matter of fact I thought were; others certainly were not; but there was absolutely no means of telling, even after the result was known, why it happened to be good in one and not in another. All such cases therefore had to be excluded and the method tried upon the simplest that could be found those in which one element only was present, or in which one was so far pre-eminent as to dwarf and reduce into insignificance all the rest. By doing this I hoped to obtain some definite information as to the effect of the treatment and the kind of stricture to which it was suited. and the results arrived at in these cases are the only ones to which I attach any importance.

Simple cicatricial strictures are the easiest to find and to observe The best examples for the purpose are those that occur at or close to the meatus after chancres. In most instances they are not complicated by spasm, congestion or chronic inflammation; they are nothing but cicatrices pure and simple left by the healing of a suppurating sore. Half of my cases consisted of these, and the result was much the same in them all. With a very weak current. not exceeding two or three milliampères, the only effect perceptible after half an hour's trial was a little redness around the meatus. If the strength was increased up to eight or ten milliampères the cicatricial tissue was undoubtedly softened, the surface became moist and sticky, small bubbles of gas made their appearance. the area of redness grew wider and the stricture tissue yielded so much that sometimes after one sitting, sometimes after two or three, a bougie of larger size could be introduced, and in one or two instances this improvement continued and even progressed for some days without anything more being done. The effect, in other words, was closely similar to that which follows the tying in of a catheter, only it was more rapid. In the one case the presence of a foreign body, in the other the passage of an electric current sufficiently strong to cause hydrolytic decomposition in the tissues. set up a certain degree of irritation; mild inflammation followed; the epithelium, which was of very low vitality, melted away in the form of a gleety discharge and the scar tissue became softer under the influence of the hyperæmia and exudation that followed. The final result was the same in all the cases that I succeeded in keeping sufficiently long under observation. If catheters were not passed at frequent intervals recontraction always took place; the hyperæmia subsided, the epithelium was regenerated after a certain amount of soreness and the scar tissue contracted again. In some instances this took place rapidly; in others more slowly, and in one there was a considerable interval before any diminution in size was apparent, but similar differences are not uncommon in connection with other methods of treating strictures. I could not find that the passage of a weak electric current for half an hour on some half a dozen or perhaps a dozen occasions, with intervals of several days between, effected any change in the character of the scar.

The result was equally unsatisfactory in a case of traumatic stricture of the œsophagus following the swallowing of nitric acid in which I tried an electric current before proceeding to gastrostomy. There was for a time a slight increase in the diameter, but it was not sufficient to be of any real use to the patient, and slight as it was it could not be maintained without continual instrumentation.

Strictures that result from chronic inflammation only, in which there has never been any breach of the mucous surface, are more difficult to find, or at least to prove. They lie as a rule further down the urethra; an endoscope is required to see them; it is necessary to trust almost altogether to the history of the case; and there is nearly always a certain amount of congestion and muscular spasm. I have, however, notes of seven cases of stricture in which it may be reasonably assumed that this was the chief if not the only cause. Their development was too slow for them to have been caused by the contraction of a scar; years had passed since the last attack of gonorrhœa without any reduction in the size of the stream having been noticed; gleet had lasted for a long period in them all, and their progress except toward the end had been of the slowest. Some could not be felt from the outside, and were therefore probably limited to the urethra; others involved the peri-urethral structures as well. Muscular spasm and congestion were present in all more or less, and in most were the immediate cause of the patients applying for relief; but these additional elements were got rid of as far as possible before commencing the treatment by keeping the patients in bed, upon low diet, and keeping the bowels open.

I am inclined to think that these strictures were benefited to some extent by the electricity. The current was not allowed to exceed five milliampères for fear of injuring the epithelium, which in such cases is usually thin and wasted, and consequently there was very little gleet or soreness afterward. Under its influence the stricture tissue appeared to soften and yield more rapidly than it usually does under dilatation alone. In two instances the passage was so narrow when the treatment was commenced that the electrode could only rest upon the face of the obstruction without penetrating it, and here at least the current should have full credit. In the other cases the electrode could be introduced into the stricture and the effect therefore was partly mechanical, as when an ordinary bougie is employed; but even in these, though the number is too small to form a positive conclusion, it was my impression that the stricture tissue softened and yielded with more rapidity than usual. I am bound to admit that I had rather expected this result. I fully anticipated that the hyperæmia caused by the prolonged application of a weak electric current would soften the dense tissue around the urethra for a time, and this may have influenced me in coming to this conclusion. Having said this in its favor I have, I think, said all that I can. The stricture tissue is softened but the obstruction is not removed, and when the current ceases and the hyperæmia subsides, unless other methods are employed to maintain the advantage that has been gained, the lymph contracts again and becomes as firm and hard as it was before. I could not find any evidence that a weak electric current by itself, without the assistance of mechanical dilatation, was able to disperse indurated tissues or remove the obstruction which keeps up the inflammation and makes the stricture grow steadily worse. All that it does is to cause during the time that it is being applied, and perhaps for a short period afterward, an increase in the amount of blood circulating through the part and in the amount of lymph that transudes through the walls of the vessels. Under the influence of this the stricture tissue temporarily becomes more lax. When the application ceases, or very soon afterward, the effect ceases too and the tissues resume their former character. Electricity will succeed if thorough dilatation or division is practiced at the same time; the urethra then is given a sufficiently long period of perfect physiological rest, and absorption becomes possible; but without one or other of these the effect that it produces is only transient. Of the influence of electricity upon the other two elements that enter into the formation of stricture—muscular spasm and congestion—I have very little to say. I found only three examples sufficiently well marked to make the experiment worth trying, and in these the difficulty arose almost entirely from spasm, the amount of congestion being very slight. A weak current was used in the ordinary way with the negative electrode in the urethra, and the resistance certainly yielded before it; but how far this was due to the electricity and how far to the steady pressure of the instrument tiring the muscle out it is impossible to say. My own impression is that the latter was quite as important as the former, and I could not persuade myself that in cases such as these electricity possessed any material advantage over other methods that have been well known and well tried for years. It is certainly more cumbersome, and though the number of cases in which electricity was used is too small to form a definite opinion it does not appear to be more effective than the ordinary methods of treatment.

So far, then, as one is justified in drawing conclusions from such a limited number of cases my experience is in thorough agreement with the general impression as to the value of the constant current in the treatment of stricture. In certain instances—those, for example, in which there is an indurated mass involving the urethra, with a very narrow and perhaps tortuous channel through it—electricity may be of some use; it assists in softening the dense tissue and so renders more easy the application of more effective methods, and it may perhaps relieve muscular spasm to some extent. I have not been able to find any proof that it is capable of doing more than this.

SIMPLICITY IN THE TREATMENT OF FRACTURES.[1]

By JOHN B. ROBERTS, A. M., M.D., of Philadelphia.

The essential factors in the treatment of broken bones are, undoubtedly, the early replacement of fragments, the prevention of recurrence of displacement, attention to the condition of the soft parts, and due consideration of the patient's general health. After the reduction has been satisfactorily accomplished, displacement may recur through the action of gravity, muscular contraction, or the restlessness of the patient; and the surgeon must guard against such recurrence by applying some form of fracture-dressing that will retain the fragments in proper position. The best form of dressing will, as a rule, be that which corrects the tendency to displacement and, at the same time, steadies and immobilizes the limb. Special tendency to displacement varies with the line, and position of the fracture, and should be recognized by the surgeon before he decides upon a form of dressing.

Fracture-dressings may be classed under three divisions: First, those that exert moderate continuous traction, or maintain the extension that was applied when the fracture was first adjusted; secondly, those that, by virtue of their rigidity or fixedness, resist retraction, and finally, those that, by virtue of their inflexibility, prevent angular or lateral displacement, by furnishing lateral support to the fracture.

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[1] Read at the meeting of the Medical Society of the State of Pennsylvania, at Williamsport, May 17, 1893.

These statements, which are almost axiomatic, will probably meet with the approval of all the members of the society; but it is more than likely that, in a general discussion of the subject, there would be advocated a dozen different ways of treating the same fracture. It seems to me that surgeons often lose sight of the fact that simplicity in fracture dressings is as much a surgical virtue as simplicity in the form of instruments used in surgical operations.

Simplicity in the treatment of fractures is often neglected because of an obsequious reverence for the names of former surgical teachers, which have become attached to a splint, or method of dressing. It is stated that legends and traditions connected with historic places never die; it is, unfortunately, true that surgical traditions have a similar lasting and often deleterious influence upon the progress of surgery. Illustrations of this areseen in the present use of Bond's splint for fracture of the lower end of the radius, an appliance founded upon an erroneous understanding of the nature of the injury, and one of the worst splints that could be used in the treatment of such a fracture. Physick's long splint for fracture of the femur is still used in this injury by many surgeons, who fail to realize that a more modern method of dressing is less troublesome to the attendant and more comfortable and safe for the patient. Desault's dressing for fracture of the clavicle has now no value except as a puzzle with which to entangle unhappy students under examination; yet it is probably still employed.

Many books are filled with elaborate descriptions of fracture-dressings, whose number seems to be limited only by the patience of the author. Hamilton's *Treatise on Fractures* is so full of these complicated splints and devices that the young practitioner must be hopelessly lost in selecting a method for treating a fracture under his immediate care. Individuals, as well as races, are born with mental characteristics that drive them to invent and advocate complicated methods in all the pursuits of life. The English and German surgeons perhaps illustrate this tendency to an extreme degree. Some American surgeons, partly from individual traits and partly from over-developed imitative faculties, are led in the same direction.

A truly wonderful illustration of this perversion of the mind is found in Bardenheur's *Guide to the Treatment of Fractures.* I show a single illustration taken from his book in proof of my statement. Could anything be more perposterous than the method by which a patient with an ordinary fracture of the lower end of the radius is here treated? He is shown confined to bed, with weights and pulleys attached to his arm and hand so as to make traction in five different directions. Such a method of dealing with an injury, which ordinarily needs scarcely any splint, is a travesty of modern surgery. That even an American can accept such complicated dressings is shown by a visit to the wards of some of our large metropolitan hospitals. I recently saw in a hospital in a neighboring city a patient with a fracture of the thigh. The dressing was a Physick's long splint, combined with the extension-apparatus of Buck, and I think a plaster-of-paris incasement—that is, this afflicted patient had about as much apparatus applied for his single fracture as would be required for the treatment of three patients with a similar injury. Any one of the appliances would be sufficient for an ordinary fracture of the femur.

Physicians coming to Philadelphia are, I think, often surprised at the simplicity of the dressings used in some of our hospitals. It is certainly gratifying to know that we do work in a less complicated manner than is the case in many other cities.

Another reason for a want of simplicity in fracture dressing is that students are often taught during their pupilage that each fracture has its special splint; hence, they do not realize that the same form of dressing, with very slight alteration, will often answer for fractures in different parts of the body. I have never forgotten an expression used by Prof. Chiene, of Edinburgh, who told me that he disliked ready-made splints, as he did ready-made trousers—they never fitted.

Few will dispute the desirability of simplicity, provided that simple measures meet the indications and fulfill the surgical objects. Simple dressings are always attainable; they are cheap, and they are usually much more comfortable to the patient than more elaborate appliances. The latter are much more liable to become displaced and cause discomfort, and their intricacies are much less likely to be understood by the patient's friends or the hospital resident. The complication also tends to make the surgeon hesitate about removing the dressing, as much time, considerable assistance, and no little skill are demanded in its replacement. For this reason complicated dressings are likely to be changed less frequently than simpler ones, and the progress of the fracture less often noted. I am quite convinced that simple appliances that are readily removed and easily adjusted tend to yield better results, because of the more frequent examination and inspection given the injured bone.

I would obtain simplicity by disregarding all the unnecessary portions of dressings, and by selecting simple articles for retaining the fragments in apposition. The primary bandage often applied to the limb before the splint is adjusted is unnecessary and sometimes harmful; it is seldom used by practical surgeons of to-day. Embrocations of lead-water and laudanum, and of similar drugs, supposed to lessen the amount of inflammation, at the seat of fracture, should be discarded, as they have no potent influence upon lessening the inflammatory exudate, and may, perhaps, by maceration of the skin, lead to blebs on the surface of the limb. Proper coaptation and freedom from muscular contraction are the factors most needed in the treatment of the inflammatory condition. With omission of the primary bandage and the embrocations, which some surgeons cling to as a sort of fetich, there is nothing to be applied to the fracture but the retentive apparatus. This should be of the simplest description. The surgeon who has sufficient individuality to refuse to pay for a carved or molded splint of metal offered by an instrument-maker will seldom have difficulty in dressing a fracture in a simple manner.

The form of displacement and the character and seat of the fracture will give a hint to an observant surgeon as to the kind of apparatus to be used. Anything that tends to maintain the proper contour of the bone after reduction is what is needed. If wooden splints are used, they should be very light and seldom thicker than the lid of an ordinary cigar-box. Heavy splints, with much padding, are uncomfortable to the patient because of their weight and heat. In most fractures comparatively little strain is likely to be thrown upon the broken bone during treatment; hence, a splint with a moderate degree of rigidity is all that is needed to prevent displacement.

There is no question that the best splints in use are those that are molded to the limb after reduction of the fracture. These fit any inequality of the surface without padding, and can, therefore, be very light, and are worn with comfort. Molded splints are most readily made from butter-cloth, or cheese cloth, dipped in plaster-of-Paris, paste, or glue. They are readily prepared, and can be molded to the form of the limb without giving the patient pain. In some cases almost no apparatus is needed, because the parts may be put in the position that places the displacing muscles at rest and that insures proper coaptation of the fragments; for example, a fracture of the fibula, in which there is very little tendency to displacement, may be treated by simple bandaging, or even this may be dispensed with, because the parallel tibia makes an efficient splint. In some fractures of the phalanges an adjoining finger or toe acts as a good splint, or the finger of a glove, made rigid, will keep the parts in good position. A little additional firmness can be given to the glove-finger by painting it with glue or mucilage. In the same way a stocking may be used as a splint, by making it a little more rigid with starch, plaster-of-Paris, or other hardening material.

The rapidity with which plaster-of-Paris, mixed with water, solidifies makes it by all odds the best material for molded splints. Felt, or gutta-percha, may be softened by dipping it in hot water, and may then be molded to the part; but these materials are not so easily obtained as gypsum or plaster-of-Paris, which is always to be found in any country store. Strips of gauze, or other woven fabric, may be converted into excellent splints by saturating them with plaster-of-Paris and water. Eight or ten of these strips when applied to a limb soon become hard and will hold it in position. Lateral, anterior, or posterior splints of any shape may thus be made and are to be held in place by a roller bandage. The plaster-of-Paris must be kept dry, for if it has absorbed moisture it will not set. The setting may be retarded by adding a little dissolved glue or borax, or cream of tartar, or by the use of cold water in making the mixture. Setting may be hastened by the use of hot water, or by adding a little common salt to the water. It takes very little skill to cut V-shaped pieces out of the gauze and to overlap the edges when the corners are to be turned; a moderately good surgeon can make a splint of this kind fit perfectly. In compound, or open, fractures, openings can be left or made in such splints. Strips of metal, to further stiffen the splint, or metal rings, for supporting a limb, may be incorporated in the layers of gauze and gypsum.

Sometimes we can use another part of the body to maintain apposition of the fragments. Thus, in fractures of the upper part of the humerus the thorax may be used as a splint, when the arm is bound by a bandage to the chest. Fractures of the lower jaw are usually treated by using the upper jaw as a splint.

In the treatment of open, or compound fractures less simplicity is possible in the first dressing; but the surgeon who is fully imbued with the doctrines of antiseptic surgery will usually be able to convert fractures of this kind into what are practically closed ones. Thoroughly laying open the injured regions, scraping out all particles of dirt, scrubbing the parts well with soap and water and a nail-brush, and providing for removal or asepticity of all accumulations of blood, will enable him to put a dry antiseptic dressing and a splint upon the injured extremity, with the conviction that the wound will probably go on to recovery with very little variation from the clinical course of uncomplicated fractures in the same region.

It will perhaps aid in the discussion of this subject, if I give illustrations of simple methods of treating common fractures. It will be understood, of course, that my personal preferences are shown by these illustrations; but, naturally, there are many other equally simple methods of treating the same injuries, which may be adopted by other surgeons. These descriptions necessarily refer to such fractures of bones as are ordinarily seen, and not to cases of unusual severity.

Fractures of the clavicle are usually satisfactorily treated by Sayre's adhesive-plaster dressing, consisting of two long strips of plaster, which act by drawing the upper part of the humerus backward, fixing the lower angle of the scapula, and pushing up the elbow. Fractures of the clavicle unite with less deformity, as a rule, if the patient is kept upon his back for a week or ten days, so that the scapula is held in position by the weight of the body pressing against a hard, smooth mattress. The supine position, with arm and forearm thrown across the patient's chest, usually allows the fragments to fall into proper position. Such recumbency for a few days gives a chance for the tissues surrounding the seat of injury to become more or less rigid with inflammatory exudate, and there is, therefore, less danger of recurrence of the deformity when the patient is allowed to walk about with Sayre's dressing applied to the injured region.

Fractures of the upper end of the humerus are successfully treated by putting a towel in the axilla, and then bandaging the upper arm to the side of the chest, having the forearm, which is otherwise free carried in a sling.

Fractures of the middle of the shaft of the humerus are well managed by an internal angular splint, preferably made of gauze and plaster-of-Paris. Fractures of the lower end of the humerus are best treated with the elbow in the extended position, so as to retain the carrying function of the arm. I prefer holding the elbow in this position by a splint of wood having the obliquity of the normal axes of the arm and forearm or by means of a gypsum splint.

Fractures of the forearm require an anterior and a posterior straight splint, which should be neither too wide nor too narrow. Fractures of the lower end of the radius usually require nothing but a wristlet, or band of adhesive plaster, carried around the lower end of the bone to restrict the movements of the wrist-joint after reduction. Where there is unusual comminution of fragments a straight wooden splint, about six inches long and an inch wide, placed on the back of the wrist, is all that is required. Fracture of the olecranon demands scarcely more than a wooden splint about eight inches long and one inch wide, in front of the elbow, to prevent flexion. Fractures of the femur, whether of the neck or shaft, or above the condyles, can generally be well treated by permanent traction, made by attached adhesive plaster and a weight fastened to a rope going over a pulley at the foot of the bed.

By altering the direction of the traction, the surgeon will find this method satisfactory in all ordinary cases. Sand-bags at the sides of the femur, to prevent displacement, or a short splint of binder's board around the thigh at the seat of fracture, is the only additional apparatus likely to be needed. Sometimes this can be omitted. For fractures of the tibia and fibula, a fracture-box, or plaster-of-Paris splints meet all the ordinary indications.—*Med. News.*

SCIENTIFIC OBSTETRICS IN PRIVATE PRACTICE.[1]

By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Philadelphia Polyclinic; Clinical Lecturer on Obstetrics and Gynecology in Jefferson Medical College, etc.

If one were asked the meaning of the word "scientific," a proper definition would be found in a phrase indicating the possession and dissemination of knowledge. A scientific journal is one that contains and disseminates knowledge of the subject of which it treats. Modern medicine is a science in so far as it contains valuable knowledge concerning human life and disease, and scientific obstetrics is the theory and practice of this branch of medicine, characterized by accurate knowledge.

In this one point of the possession or absence of accurate knowledge rests the difference between the obstetric practice common in the United States twenty-five years ago and the theory and practice taught at the present day. Impressed with the ability of nature to deal successfully with the emergencies of labor, the practitioner who attended obstetric cases has been wont to comfort himself with the axiom that labor is a natural process, of which he need not seek to ascertain too minutely the details. The condition of pregnancy he regarded as naturally normal, and hence without especial tendency to disease. The lying-in period was to him a natural stage in the life of the individual, and required at his hands no especial scrutiny. An accurate diagnosis as to the factors present in a given labor was rarely made, unless some serious emergency arose.

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[1] Read before the Section on Obstetrics, American Medical Association, Milwaukee, June, 1893.

There have been many reasons for this condition of affairs. The comparatively recent discovery of anæsthetics placed at the disposal of the obstetrician a means of diagnosis of inestimable value. The employment of antiseptics has rendered possible manipulations for the diagnosis and treatment of labor that formerly were impracticable. Methods of diagnosis are now commonly taught and practiced that, at the period mentioned, were only to be seen in practice in the large hospitals of Europe. Modern obstetrics has, then, great advantages in its opportunities to acquire thorough knowledge of the patient and of her labor, and this, too, without the infliction of additional pain, or the incurring of added risk to life. The characteristic of modern obstetrics is its scientific element, as shown in the accurate knowledge that it requires concerning matters formerly thought to prosper inevitably through the kind coöperation of Nature.

Scientific obstetrics is the rule in the modern hospital, but it is often "honored more in the breach than in the observance" in private practice. The reasons for this are many. First, among all, is the common belief, derived largely from physicians and nurses, that, because labor is a natural process, it is bound to proceed successfully without intelligent supervision. If this is true, why should a patient tolerate palpation, auscultation or pelvimetry; or why should she take an anæsthetic when the mechanism of labor is interrupted, and a thorough examination of the condition present becomes necessary? A common belief that has descended from the days of the early craniotomist, or man-midwife, as he was termed, is that any interference with labor means, practically, the use of forceps, and hence the objection to critical examination in an emergency. Again it not infrequently happens that a complicated labor terminates spontaneously, and apparently with success to mother and child. It does not occur to the patient and her friends that complications may have arisen, by reason of the long continuance of the spontaneous labor that could have been avoided had intelligent interference been practiced.

There is especial need for scientific obstetrics in private practice, because the practitioner is more directly responsible for the condition of his patient than when he is engaged in hospital practice. He lacks in private the experienced observation of trained nurses; he misses the intelligent co-operation of resident physicians; and experiences the great disadvantage that the absence of order and discipline, so common in a private house, entails upon him. It is, therefore, especially necessary that he gain thorough knowledge of his patient by personal observation and study, and this knowledge is the essential of scientific obstetrics. The fact that the best results in obstetric practice are observed in hospitals, draws attention to the need for scientific work in private cases.

Omitting a consideration of the minor details of private obstetric practice, we urge the importance of a thorough examination by the practitioner of all pregnant patients. We are well aware of the fact that many cases are not seen by their attendants until labor is far advanced, and no opportunity has been given to examine the patient during pregnancy. This is growing to be, however, less the case than formerly, and especially in first pregnancies, when the natural dread of an untried experience brings the patient to the physician comparatively early. This scrutiny of the pregnant patient should be directed especially to ascertaining the condition of the organs of elimination, and the success attending their action. The examination of the urine should be an invariable practice, and valuable information will be given by ascertaining not only the presence or absence of albumen, but by careful microscopic study of the sediment, and also an estimation of the amount of urea excreted. In the Maternity Department of Jefferson Medical College Hospital we have for some time derived valuable information regarding a patient's eliminative powers by ascertaining the quantity of urea excreted. The presence of albumin is of itself a trifling matter, unless the microscope reveals evidence of decided structural change in the kidney

At or after the seventh month of pregnancy it becomes the duty of the attending physician to ascertain the mother's size, and the relative size of the fetus and the position that it occupies in the mother's pelvis. This is a procedure commonly thought unnecessary, and reserved for the lectures of those who teach obstetrics. That such is not the case is well exemplified by two fatal cases, seen by me recently in consultation, in both of which embryotomy upon the dead fetus was necessary. Two well developed male children were sacrificed to a lack of diagnostic skill on the part of the medical attendant, and to complete the unfortunate history of those two cases, the lives of the mothers were lost on account of the stupid laziness of the physicians, who neglected to use antiseptic precautions during labor. In both cases the child had perished before the consultation, and the embryotomy was performed to spare the medical attendant from reproach and criticism for his failure to deliver the mother. These four lives could have been saved had proper precautions been taken.

The practice of general medicine, including obstetrics, in country towns or villages, often taxes to the utmost the skill and wisdom of the so-called "country doctor." As a result, he has a range of experience unknown to his city brother, and becomes by natural development more assured, self-reliant, and efficient. He is the man who, above all others, can appreciate the value of any method of practice that shall add to the positive knowledge he has of his patient. We do not ask him to provide himself with elaborate or costly pelvimeters, or instruments for diagnosis, but, as is our custom in lectures at the Philadelphia Polyclinic, we do urge upon the general practitioner a knowledge and practice of palpation, auscultation, and of such a method or methods of estimating the size of the mother's pelvis and the relative size of the fetus as may be within the scope of his possibilities. No student graduates from a well-appointed medical college who is not in the possession of this knowledge, and certainly the general practitioner already established cannot afford to be behind the recent graduate in his resources. The objections urged against the examination of pregnant patients, including the measurement of the pelvis, are based upon needless exposure of the patient, or rude and unskillful manipulation. We have yet to find a private patient, of whatever station in life, who offers the slightest objection when her physician asks that he be given an opportunity to acquire a knowledge that shall the better enable him to care for his patient, particularly if, by so doing, he subjects her to no exposure, nor to tedious and painful manipulation. The abdomen of the patient may remain covered by one thickness of cotton or linen, without in the least inconveniencing the physician, and medical students under my instruction are taught to make their examinations in this manner.

One of the great advantages accompanying this mode of practice is the lessening of vaginal examinations, which are a source of considerable danger to the patient. It is perfectly possible by palpation alone to follow the head of the child as it descends through the pelvic canal and impinges upon the pelvic floor. The character and efficiency of the pains of labor may also thus be accurately observed, and oftentimes valuable assistance can be rendered by external pressure gently and judiciously applied.

When the mechanism of labor is interrupted, a thorough internal examination is at once indicated. This is often impracticable without the administration of an anæsthetic. The practitioner should be prepared to interfere for the assistance of the patient. Forceps should be prepared and ready. The rectum and bladder should be emptied, and, while it is not necessary to state to the patient that an operation is to be performed, yet, while she is under the influence of the anæsthetic, it may be found wise to terminate the labor. It is often impossible to accurately diagnosticate a faulty position of the head without an anæsthetic, the resistance and suffering of the patient being so great that sufficient of the hand cannot be introduced to make a thorough examination. When, however, such an examination has been made, and before the examining hand has been withdrawn, the forceps may often be accurately applied to the sides of the child's head, and the labor brought to a successful termination. In other cases, version and extraction may be found necessary. In either event, examination of the patient under anæsthesia will spare her hours of suffering, and will often save the life of an infant, and sometimes that of the mother.

The same thoroughness in treatment should obtain in the diagnosis and treatment of injuries to the genital tract. By the term "laceration of the perineum," we understand a solution of continuity that extends more deeply than the posterior commissure or fourchette. We are aware that a laceration in the median line may extend beyond the fourchet, and still not impair the supports of the uterus to any appreciable degree. When we read and hear of large numbers of cases of labor in which no laceration of the perineum has occurred, we are impressed with the fact that those who record such extraordinary experiences either consider that a laceration of the perineum usually extends into the rectum, or else that they did not accurately examine the cases. The examiner may be readily deceived by a superficial examination by the finger only of the genital canal, soon after labor. Clotted blood often fills a torn surface, giving to the finger the same continuity of smoothness that marks the uninjured mucous membrane. It is only by the thumb and finger, one inserted in the rectum, or better still, by actual inspection, that the condition of the genital tract after labor can be accurately ascertained. Considerable observation of labor-cases, and the careful employment of the best known means for preventing laceration of the perineum, have convinced me beyond reasonable doubt that such an injury is inevitable in many cases. It is negligent not to discover it; it is lazy and dishonest not to endeavor to repair it.

Fortunately, in these matters, public sentiment is demanding the advantages of scientific obstetrics. We recently had occasion to tell a young woman that she had sustained a laceration of moderate extent that ought to be closed. She said that if such was the case, she earnestly desired that it be at once repaired, as her sister had suffered from the neglect of her physician in not suturing a similar laceration. We are furthermore helped in dealing with these questions by the fact that experience shows us that excellent results may be obtained as late as twenty-four or thirty-six hours after the occurrence of a laceration. It is far better practice to give the patient and physician twenty-fours' rest after a trying labor, and then, under anæsthesia, or with the use of cocaine, close a laceration under favorable circumstances, than to further exhaust a weak patient, and with poor light and laboring under great fatigue, to improperly perform the physician's duty. If torn surfaces are found glazed over, the simple expedient of scraping them with the blade of a pair of scissors, or with a curette, will suffice to secure union by first intention.

It is burdening you with a trite observation to speak of the importance of obstetric antisepsis or asepsis, and yet the same reasoning that enables the practitioner to assert that in his 1,000 cases he has never had a lacerated perineum, leads him likewise to claim that in his 1,000 cases he has never had a case of puerperal septic infection. He may have avoided signing a death certificate for a patient recently delivered, the certificate bearing the word "peritonitis," "blood-poisoning," "inflammation of the bowels," or "puerperal fever"; but cases occasionally perish some weeks after labor, with "jaundice," "pneumonia," "congestion of the liver," or "malaria," that, on closer study, will be found to be the results of puerperal septic infection. The faithful practice of aseptic or antiseptic precautions greatly lightens the load of responsibility that the practitioner of obstetrics must carry.

Not the least of the advantages derived from the scientific practice of obstetrics lies in the avoidance of interference by those who have no right to molest the patient. The practitioner's best efforts are often thwarted by ignorant and meddlesome persons. He cannot, however, honestly forbid interference, unless he knows positively that there is no occasion to molest the patient. He will obtain the best results in obstetric practice who does the work himself, unless he can command, for certain things, the assistance of a trained nurse. Thoroughness in diagnosis, the faithful observance of antisepsis in treatment, and the protection of his patient from meddlesome interference, will give the best results. Such a method of procedure is thoroughly scientific, for it demands the best knowledge, the most careful and skillful manipulation, and, above all, an honest and fearless attempt to meet the difficulties that may arise. In the present stage of medical science, every woman has a right to demand such treatment, and if a practitioner of medicine cannot give his patient such care, he must inevitably, by the inexorable law of the "survival of the fittest," give place to those who can.

THERAPEUTICS OF DEGENERATIVE DISEASES OF THE SPINAL CORD.

By CURRAN POPE, M.D., Clinical Professor of Diseases of Mind and Nervous System, Louisville Medical College; Consulting Neurologist to the Louisville City Hospital; formerly Resident Physician to the Anchorage (Insane) Asylum; Member of Pan-American Medical Association; Member Mississippi Valley Medical Association, Kentucky State Medical Society, Jefferson County Medical Society, etc., etc

Sufferers from this class of diseases are many, and any mode of treatment by which their condition can be bettered will not only be hailed by the profession with pleasure, but by them with joy. They too often feel that they have entered that vale "where hope is left behind," and that any and all effort on their and their physician's part is useless. Such belief is opposed to actual facts. It was a belief of former years that has been changed by the steady advance of scientific knowledge and the improvement and invention of apparatus for the relief of disease. As we advance in knowledge there will be fewer and fewer diseases classed as incurable, a notable example being myxœdema.

The therapy here mentioned is not original, nor is it claimed to be, but success in the treatment of the three diseases discussed leads the writer to place before you the results of his work. It would be foreign to the title of the paper to discuss etiology, symptomatology, pathology, or prognosis, and without quotation of cases I will proceed to a description of that treatment which in my hands has yielded the best results. In passing I would like to state that it has been impossible to carry out this line of treatment in clinical patients, owing to the cost. The objects of treatment are three: First, to arrest the disease; second, to palliate the symptoms; and, third, to relieve suffering.

Myelitis.—Hygienic treatment is very important. Rest, both physical and mental, with a simple, unstimulating, and easily digestible diet. Alcohol, tobacco, and coffee must be interdicted or limited to exceedingly small quantities, while a regular and quiet life in the open air is almost a necessity. In winter, sitting in the sun is of advantage. *Drugs have been of little value.* If a myelitis is from specific disease, antispecific treatment may be of use. I prefer inunction, and the iodide internally in Vichy water well diluted, the latter having also a beneficial effect upon the bladder. Of the drugs usually used, nitrate of silver, the red iodide of mercury, arsenic, ergot, and phosphorus have been in my hands of only occasional benefit in conjunction with other treatment. If anæmia exists, as shown by hæmometer, I use the sulphate and saccharated carbonate of iron, with minute doses of arsenic or quinine, to which one-half to two grains of boric acid may be added for the bladder trouble usually existing. The urine should be examined from time to time, and no hesitancy felt in using the catheter if cystitis is present.

Benedict has found the direct static spark over the bladder almost a specific, relieving the irritation and giving comfort, and I have used it on several cases with bladder trouble with advantage. In recent cases a Chapman's ice bag may be applied to the spine for five to ten minutes daily. Electricity is of unquestioned benefit. A large positive electrode should be placed over the cilio-spinal region and the large negative electrode over the lower dorsal vertebræ, and a gentle current of from two to five milliampères (increased after several sittings to twenty) is passed, lasting from one to five minutes. All changes and interruptions of the current must be avoided. This is to be given every other day. Static sparks may be used as an alternative. Gentle massage is also beneficial in these cases.

Hydrotherapeutics, however, offers the best field for treatment. Full baths at from 85° to 90° F. for from five to fifteen minutes, half baths from 70° to 80° F. from three to five minutes, with gentle friction, or full brine baths containing twenty to thirty pounds of salt, at 85° to 90° F., from five to twenty minutes, are the best. A gentle galvanic current may be combined with the first two with an excellent effect. Russian and Turkish baths are dangerous and to be avoided. These methods separately are usually of little good, but by combining them much good may result.

Such a combination, for instance, as the following: The hygienic rules are laid down and the patient put upon the iron, quinine, and boric acid prescription before mentioned, preferably in tablet form then a combination of spinal galvanization and full baths for one week, static sparks and half baths another, electric or brine baths and massage the next, varied just as each individual case seems to demand. In all treatment caution, care, and moderation must be observed. Dana truly remarks: "Electrical and hydrotherapeutical applications should be followed up patiently and persistently." Many combinations with resulting benefit to the patent may be made, and treatment should be changed frequently. Outside of the tonics mentioned I do not put any faith in drugs for this disease.

Locomotor Ataxy.—There are many fallacies existing in the medical mind concerning this disease. There is a prevalent idea among physicians and laity that this disease is incurable, cannot be ameliorated, and that a sufferer from it must at once give up business, his hope of life, and prepare for his voyage with Charon across those dark and gloomy waters. Such is not the true status of affairs. It must be admitted at once that drug treatment is *practically without value.* Of this Dana says: "I doubt if any drugs are of value except silver." Gray remarks: "Clinically there are many cases that may be arrested by treatment," while Gowers is more specific. He says: "It *does not*, as was once thought, deserve the name of *progressive* given to it before the preataxic stage was known and *before the disease was widely observed.* Arrest is frequent, considerable improvement not rare. When the third (last) stage is reached the possibility of improvement is far less, *but not quite absent.* The disease is one in which treatment has a very clear influence, not only in relieving suffering, but in determining the arrest or diminution of the disease." (The italics are mine.)

What a difference from the usual opinion is this!

A thorough examination and a careful diagnosis is a prerequisite, and should include, in my opinion, in every case an examination of the urine and blood. The patient should clearly understand his position and be impressed with the fact that the treatment must be not only daily but kept up for months if a successful issue is desired The therapeutician in these affections must have a long list of remedial measures and be prepared to frequently change the treatment, attacking the disease afresh and from a different side. I would insist upon the *hygienic* treatment. The diet should be plain and wholesome, easily digested, and such articles as slaw, cabbage, rhubarb, heavy pastries, made dishes, and sweets avoided Nitrogenized food is the best. Regular hours for food and sleep must be observed. Excessive mental and physical fatigue, as well as exposure to cold and falls, should be avoided.

Exercise or exertion must be limited and rest taken. It is a good plan to have such patients retire early, sleep late, and rest before and after dinner. Alcohol, tobacco, and coffee should be forbidden. Sexual excesses are exceedingly dangerous, especially upon the optic nerve atrophy.

Of the systematic treatment of the disease, baths, electricity, and massage are best adapted for the relief of the patient and the arrest of the disease. Hydrotherapeutics offers probably the best line of treatment. I have used the following baths and consider them the best:

1. Lukewarm baths from 90° to 95° for five to ten minutes, and to which pine-needle extract has been added.

2. Tepid half and full baths, 75° to 80°, for five to ten minutes, with gentle friction.

3. Heavy brine baths, thirty to forty pounds of salt, 85° to 90° F., five to twenty minutes.

4. Galvano-electric baths, 85° to 90°, five to twenty minutes, twenty-four to fifty milliampères ascending current, are of unquestioned value. Cold douches, vapor baths, Turkish baths, and wet packs are dangerous. As a rule these baths lessen the depression, invigorate the patient, and relieve that indefinable "nervousness" that nearly always exists. Then they are curative, increasing the control over the movements, improving the digestion, lessening the pains, and establishing a feeling of *bienfaisance*. Of the different forms of *electricity* I prefer the frictional. Heavy, direct sparks to the spine, and lighter ones to the anæsthetic area, have yielded excellent results in my hands in relieving the anæsthesia and feeling of constriction.

The galvanic current has been with me less effective than the "static," but an ascending current of from two to thirty milliampères for two to ten minutes is effective in some cases. Massage should be used with caution. I prefer the mechanical form, using it about twice weekly in conjunction with other treatment. *Unfortunately* drugs are of no practical value, except tonics where anæmia exists. If a previous syphilitic history be obtained, or where suspicion exists, moderate doses of kalium iodide, in combination with mercury internally, by inunction or baths, should be tried to "clear the therapeutic field." Small doses of the iodide, from ten to fifteen grains three times daily, are sufficient.

Most writers agree that silver nitrate is about the only drug of any material value in the systemic treatment of this disease. Care should be exercised in its administration. Of those symptoms requiring special treatment the "pains" are by far the most urgent. Hot bandages tightly applied, suspension, narcotic liniments, codeia, and morphia can all be used. The electric baths above mentioned, suspension, and codeia have yielded me the best results. Extreme caution should be exercised in the use of morphia. Phenacetine, antipyrine, antikamnia, and antifebrin may all be used. Chapman's ice bag will often relieve the dull pain and mitigate the exacerbations.

The ataxia can be distinctly affected by suspension lasting from one-half to two minutes, or Bunuzzi's method of flexion may be tried where no apparatus exists for suspending. From two to three times weekly is sufficient, using other treatment as alternatives.

Anæsthesia is best relieved by the static spark, and the bladder uneasiness and irritability lessened by its local use.

Thus in detail have I sketched that treatment which has afforded me the best results. That chronic diseases are now receiving attention, and chronic sufferers being afforded the relief they desire, is evidenced by the recent writings and pleas of Mitchell, Baruch, Peterson, Dana, and others. In this, as in the preceding disease, a schedule of treatment should be drawn up, placed in the patient's hands, and he be compelled to follow out its instructions. False hopes of speedy cure should not be held out to the patient, but he be made to plainly understand that, while his disease is a very grave one, he is not a hopeless sufferer, and that by patient, steady, and conscientious *work on his part*, constant supervision, direction, and guidance on his *physician's part*, relief from suffering, amelioration of symptoms, and arrest of the disease will probably ensue. There are, in my opinion, no class of sufferers so appreciative of relief as those now under consideration, and sympathy, patience, kindness, and the best efforts of the physician should be directed toward sustaining them in the hour of their affliction. They should be imbued with the fortitude, patience, and strength that are the attributes of humanity, while receiving the most advanced and scientific treatment that the profession can afford.

Spastic Paraplegia.—The conditions of this disease are well understood, and, as in all diseases, the hygienic treatment is of importance. Regularity should be their motto; a life freed as far as possible from depressing influences, with a sufficient amount of exercise and rest. Bicycle riding is suggested by Dana as a convenient and beneficial mode of obtaining exercise, and its use usually attended with some good. A diet wholesome, strengthening, and easily digested should be partaken of. Of the systematic treatment of this disease, *electricity* in one form only has yielded me any results—viz., heavy static sparks to spine, limbs, and contractures, used on alternate days. The other forms and modes of application were useless in my hands. By far the best field is offered by hydrotherapeutics. Three forms I have used for the last year or a half:

1. The simple, prolonged, warm bath at 92° to 95° for from fifteen to thirty minutes or longer, as the case demands. This bath does not seem to be as efficacious as the following:

2. A simple, prolonged bath at 90° to 95° from ten to thirty minutes, through which is passed a galvanic *descending* current just perceptible. The amount of current necessary to be felt will range from twenty to fifty milliampères, but the lesser current of twenty has, in my experience, been of more service.

3. The best treatment, however, is the vapor bath. I commence at 100° F. for ten minutes, at the same time keeping a cooling cap upon the head. Only moderate diaphoresis is produced. Gradually I increase the temperature to 105° F. for twenty to thirty minutes. This is followed by a gentle rain bath at 100° reduced to 85° for one minute (twenty pounds pressure), and reduced later to even 60°. The vapor bath is a solid oak cabinet, in which the head is free, and so arranged that at will a current of electricity may be passed through the body, limbs, etc. It is hardly worth while stating that this cabinet, in sensitive persons, does away with the unpleasant symptoms so often experienced after the ordinary Turkish bath.

The head being free, fresh, pure air is breathed, and any tendency toward cerebral congestion obviated by the cooling cap. This mode of treatment relieves the spasticity, improves the gait, and relieves the patient of that feeling of discomfort that is always present.

After each bath rest must be enforced. It is obvious that this method has great superiority over the ordinary Turkish bath, in that our patient is under our immediate supervision, in the hands of trained assistants, and cannot exercise his own judgment or pleasure. Gentle massage to the limbs is sometimes of benefit, but it has been of little use to me. Suspension I have used with some slight benefit.

The drugs that are suggested have never seemed to help the cases I have seen. Even if a history of previous syphilitic trouble can be obtained, antispecific treatment does not seem to help these cases, and ergot, the bromides, arsenic, or strychnia are only of temporary value.

In conclusion I wish to draw the attention of this Society to several points in this paper. Myelitis does not come under the title of my paper, but on account of its frequency I have introduced it here.

I am more and more impressed each day with the necessity of an extended and exhaustive examination of every case, carrying it as far as sputum, blood, and urine. Resulting benefit and more accurate satisfactory work will be done if this is followed out, and indications for treatment found which were never suspected. Persistent treatment is absolutely essential, and unless the patient is willing to undergo a thorough course I am not desirous of taking his or her case. They must be counselled to patience and to endeavor in every way to assist the physician. Weir Mitchell, in an admirable article published lately, pleads for the thorough and systematic treatment of chronic diseases, and his statements are apropos to the subject matter in hand. I never allow patients to take baths away from my establishment. I have tried this, and failed. It seems impossible for them to take properly the simplest bath. The temptation to take what to them is most agreeable, regardless of the results, and the lack of precision in duration, temperature, rest, etc., will in the end accrue for bad rather than for good. I have and make rules for these cases and insist upon patients following them out, and it is an essential factor of the treatment. You may have considered me a pessimist in the matter of drug taking, but I am not. Drugs have their place and uses, and I do not hesitate to use them at such times and places; but in chronic diseases, and especially in nervous diseases, their use alone is nearly, in my opinion, useless.

We have no specifics for these diseases, and the sooner the overtaxed stomach is relieved the better. Iron often fails in anæmia for the simple reason that it cannot be assimilated. Yet withdrawal, the use of easily digested food, and hydriatic measures soon place the patient in a position to assimilate and utilize this drug.

The position here taken is, I believe, the true position the profession will soon take, and it is only justice to say that the criticism here indulged in is the outgrowth of observation and the result of experience, and is merely stated with the firmness of conscientious belief.—*Journal of Balneology.*

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CLINICAL LECTURES.[1]

By Edwin E. Graham, M.D., Clinical Professor of Diseases of Children in Jefferson Medical Colelge.

Gentlemen: The main points in the history of the first case which I shall to-day present to you are as follows: T. McA., 5 years of age. About six months ago I saw this child for the first time. He had then been confined in bed six weeks with cough, rather paroxysmal in character, scant expectoration, fever, occasional chills and sweats. He was markedly emaciated; the tongue was covered with a thick dark furry coat; there was anorexia and constipation. Physical examination showed but slightly increased rapidity of respiration, a marked bulging of right chest, with obliteration of the lower intercostal spaces, and diminished right-sided respiratory excursion, with absent vocal fremitus and resonance and dullness extending superiorly to the second intercostal space. There was also absence of breath sounds over entire area of dullness.

A diagnosis of right-sided pleural effusion was made, probably purulent, and the following day, the parents not consenting to a more radical operation, I tapped the pleura with the ordinary aspirating apparatus, and drew off 12 ounces of extremely fetid pus. The puncture was made in the axillary line in the fifth interspace. The canula was allowed to remain until all discharge of pus had ceased, in order to remove the effusion as thoroughly as possible, and a light antiseptic pad was placed over the seat of puncture. No anæsthetic was given.

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[1] Delivered in the hospital of the Jefferson Medical College.

During the following three weeks the boy improved rapidly; the temperature, which on the day preceding the operation was 103.6° F., gradually fell, the chills and sweats became less frequent, respiration became deeper on the affected side, appetite returned, and the boy's nutrition and general condition slowly but steadily improved. The following note was taken twenty-seven days after the operation: Temperature, 99.8° F.; pulse, 110; moderate cough, mucous expectoration, appetite good, slight sweats, nutrition decidedly improved; over lower half of right lung respiratory excursion diminished, unimpaired resonance; breath sounds feeble but distinctly audible; boy since operation has been given liberally the most nutritious nourishment, also quinine and iron. He returns this morning in answer to a note in order that we may have an opportunity of examining carefully his present condition.

His general condition is, as you observe, very good. All his former symptoms have disappeared, and his mother states that his health seems entirely restored. Upon examination we find that the right side of the chest is slightly retracted, and over this portion of the chest the breath sounds are rather feeble and slightly harsh, and the percussion note is impaired. We have here a lung which is more or less bound down by adhesions, which prevent its full expansion; it is, however, doing its work sufficiently well for all ordinary purposes.

Pleuritis, both serous and suppurative, is now known to be a not infrequent disease of childhood: indeed, many authors claim that its most frequent period is during the first five years of life. There is no question but that the disease is often overlooked, and is repeatedly mistaken for pneumonia or for malarial fever. This is probably due to the fact that the bare chest is not examined sufficiently often in children, and also that the restlessness and crying of the child often render a satisfactory physical examination impossible. Pleuritic effusion tends more often to become purulent in children than in adults, hence the extreme importance of recognizing early the exact condition present. My main object in bringing this little patient before you is not, however, to speak of the latency of the disease, but to draw your special attention to its prognosis and treatment in infancy and childhood.

In mild cases of pleurisy, where the exudation is slight, convalescence is usually rapid, and completed by the end of the second week. Where the effusion is large, either left or righ-sided, the pressure upon the heart and large vessels may be so great as to endanger life by its interference with the circulation. Prompt thoracentesis is here imperatively indicated. The prognosis varies also, not only according to the quantity and nature of the effusion, but also to its cause. Idiopathic pleurises do better usually than those occurring as a sequel, or complication, of some other disease. Empyema, unless some means of evacuating the pus is instituted, usually ends fatally from progressive inanition, fever and exhaustion. If, however, in children the purulent collection is removed, recovery is the rule, not the exception. How, then, shall we treat empyema in infants and children?

If the symptoms are not urgent, the case recent, and the use of the hypodermic syringe discloses a liquid only slightly turbulent, surgical interference may at least be temporarily postponed and the case treated as one of serous effusion; or if, as you will occasionally find in children, a fistulous opening has been established between the pleural cavity and a bronchus, as shown by extreme fetor of the breath, or in older children, a rapid change in the expectoration from mucous to purulent, operative measures may be deferred and the case carefully watched. Under no other conditions, however, should surgical treatment be delayed.

Now, how shall the pus be evacuated? If the case is seen before the constitutional symptoms are marked, and the effusion, as examined by the hypodermic syringe, only *moderately* turbid, aspirate, and remove as much of the purulent collection as possible. Remember, however, that even in well-nourished children half an inch represents an almost maximum thickness of the chest wall, and, therefore, guard by the finger the aspirating needle, lest the instrument be introduced too far, and the lung be injured. After the removal of the pus, the firm application of strips of adhesive plaster over the affected side, extending from the sternum in a downward and backward direction to the vertebral column, assist by their pressure in the obliteration of the pus cavity.

Throughout the case every attention must be paid to sustaining the child's nutrition by the best hygiene, abundant nourishment, stimulants and the internal administration of quinine and iron.

If, however, the symptoms are more urgent, the constitutional symptoms well marked, the effusion distinctly purulent, or if after aspiration the purulent effusion quickly returns, a free incision should be made in a dependent part of the chest, and a drainage tube inserted, in order that a free escape of pus may be possible. The operation, if due regard to aseptic surgery is taken, is easy of performance, and is attended with comparatively little shock. Resection of the ribs in children under five years of age will rarely be required; occasionally, in older children, where the chest walls are more resistant, it will be found necessary. Irrigation of the pleural cavity is of doubtful utility, on account of the extreme susceptibility of children to antiseptic solutions, and the necessarily imperfect irrigation obtained in these cases.

Our next patient is a child, 1 year of age, whom you saw in this clinic one week ago. The history as then given is as follows: Non-instrumental birth; breast-fed; child, since age of 4 months, has also been given liberally of table food; dentition at ten months; possible tubercular history on maternal side. A sister, 3 years of age, is now under treatment for diphtheria at the Municipal Hospital. Five months ago "Summer complaint," lasting four weeks; almost daily vomiting since birth; vomited matters consist largely of sour, curdled milk and indigestible particles of food; two or three stools daily, usually quite offensive, at times yellow, at times greenish; vomiting much worse during past week. Mother states child was unable to pass urine during first two days of present severe attack of vomiting, during which period abdomen became greatly distended; urine, at present, scanty and high-colored; child is fretful, sleeps poorly; pale, but fairly well nourished.

As you doubtless remember, I examined the child before you, and we decided the case to be one of chronic gastric catarrh, due to improper feeding. The child was placed in the medical ward and given every two hours two ounces of a mixture of equal parts of sterilized milk and barley water, the quantity to be gradually increased. If this was not retained—and where there is much fermentation of food, even cow's milk, however diluted and alkalinized, is often, immediately after being swallowed, vomited sour and curdled—the diet was to consist of fresh cream, one tablespoonful; whey, two tablespoonfuls; water, previously boiled, two tablespoonfuls; this to be given in small quantities and cold. It was directed to sponge the child's entire body once daily with warm water, to keep him warmly clad, and half a drop of tincture of nux vomica, with three grains of bicarbonate of soda in a teaspoonful of cinnamon water, was ordered four times a day.

The child did well for twenty-four hours, vomiting ceased, restlessness diminished, but the improvement was only temporary; and to the previous symptoms there was added, forty-eight hours after admission to the hospital, marked swelling of feet, with decided pretibial œdema. The urine collected, by placing a new soft moist sponge over the genitalia, was found to contain albumen in large amounts, hyaline and epithelial casts, a few blood corpuscles and excess of urates. In other words, we deliberately overlooked our history of scanty, high-colored urine, as there seemed sufficient cause for vomiting in the bad feeding.

Another point in our history is also of special interest. Two weeks ago the sister of our little patient had an attack of diphtheria. Now, with this additional knowledge, our diagnosis is an easy matter. In addition to our diagnosis of chronic gastric catarrh, the child has undoubtedly a nephritis, caused, probably, by the action of the diphtheritic poison on the kidneys. This is all the more interesting since an examination of the child, at the time of his sister's removal to the Municipal Hospital, failed to disclose any evidence of a diphtheritic character. The case is of special interest, then, in showing the importance of a systematic examination of the urine in children, and as an evidence of the constitutional character of the diphtheritic poison, where, even in the mildest cases, the kidneys may be distinctly involved.

No internal organs are as often affected in diphtheria as the kidneys, and the poison must, of course, pass through the system before they can become affected. The albuminuria, which is here due to a parenchymatous nephritis, will necessarily influence our prognosis in the case. The nephritis of diphtheria does not, however, in itself, tend to a fatal result in most cases. The kidneys are not, as a rule, involved as extensively as in the albuminuria of scarlet fever, but only in parts, the unaffected portions of the kidneys being usually sufficient to successfully excrete the urea. Nephritis following diphtheria may, however, end fatally. Since the examination of the urine the child has been given acetate of potassium, grains two, in twenty drops of infusion of digitalis every four hours, and the urine is now passed in larger quantity, with diminished amount of albumen and fewer casts. If improvement continues, iron, in the form of Basham's mixture, will be soon substituted. A liquid diet, largely milk, will be insisted upon; the bowels will be kept moved daily, and the action of the skin promoted by the warm bath given daily, special care being taken to rub the child's entire body thoroughly in a warm blanket immediately after it is taken out of the bath.—*Annals of Gynæcology and Pædiatry.*

TUMOR OF CORPUS STRIATUM.

This was the case of a man aged forty-seven, an intelligent, temperate artisan without history of syphilis or tubercle. Ten weeks before admission into hospital he began to be apathetic, drowsy and to have some headache. He is said also to have "talked queerly." During the last three weeks he had slept a great deal, had had some delusions, failure of memory and loss of interest in his surroundings. For a fortnight he had been unable to stand without support, and his wife thought that at first his left leg was weak. There had been considerable frontal headache and occasional vomiting. The day after admission he was very drowsy, only answering questions after vigorous rousing. The right hand was mostly kept on the forehead, which he said was painful. There was some general cephalic tenderness. He occasionally made clutches with either hand at space. He could not feed himself and could not stand alone, but there was no actual paralysis of the eyes, face or limbs, and no anæsthesia. There was very slight rigidity of the left biceps, but no difference between the legs. The knee-jerks were diminished, there was no ankle-clonus and the plantar reflexes were present. He sometimes micturated in bed. The pupils were of medium size, equal, and they reacted normally. There was slight double optic neuritis. The temperature was subnormal. There was no sign of disease of the thoracic or abdominal viscera. The urine was normal. The patient lived for ten days after admission, the drowsy condition gradually deepening into coma. The slight rigidity of the left arm was not again observed, and no other spasm or paresis developed. The temperature remained between 97° and 98° till the day of death, when it rose to 100.6°.

Necropsy.—The frontal convolutions were flattened. There was slight excess of fluid in the lateral ventricles. The fornix was soft and almost diffluent. The right caudate nucleus was practically replaced by a growth but little larger than the left caudate nucleus. The tumor was in parts soft, gelatinous and reddish; in parts harder and white. On microscopical examination it proved to be a myxo-gliosarcoma. The rest of the brain was normal. Except for some old pericardial adhesions there was no disease of the thoracic and abdominal organs.

The diagnosis of intra-cranial tumor was in this case easy, though its localization was not. Beyond the slight weakness of the left leg, asserted to have been present by his wife before he came under my notice, and the doubtful temporary rigidity of the left arm, there was no indication of pressure on the internal capsule. In view of recent physiological research on the corpus striatum as a thermo-genetic center, the absence of fever in this case is of interest, for the development of the symptoms was fairly rapid, so that signs of interference with the functions of this organ might have been expected. It would seem that only sudden lesions, such as those caused by the experimenter or such as hemorrhage, are capable of producing an obvious effect on the regulation of heat. Probably a great part of the caudate nucleus had been slowly destroyed by the more chronic parts of the tumor, and the final rather rapid obliteration of the functions of the brain was due to increase in the general intra-cranial pressure caused by extension of its sarcomatous portion.

Lead Encephalopathy.—This case at first showed considerable clinical resemblance to the last, but in its cause and its result differed altogether. A young man aged seventeen, a carriage painter, was sent into hospital for cerebral tumor. His only previous illnesses were measles and "gastric fever." For three weeks before admission he suffered from headache, vomiting, dimness of vision, and pain in the abdomen. He repeatedly tried to work, but always had to give up after three days, becoming somewhat better again after a few days rest. On inquiry it was found that the vomiting had been chiefly after food, that the bowels were confined, and that the pain in the abdomen was colicky in character. There was no history or sign of syphilis. Four days after admission the patient was found to be a well-nourished but rather anæmic lad. He was lethargic and complained of continuous frontal headache, which at times became intense. There was no ocular, facial or limb paralysis, and there was no spasm and no anæsthesia. The knee-jerks were normal, as were also the plantar reflexes. The pupils were normal. There was well-marked double optic neuritis and a large retinal hemorrhage in the left eye. He had some nausea and occasional vomiting. The bowels were then open, and the urine was free from albumen or sugar, of sp. gr. 1012 to 1016, and amounting daily to about 30 oz. The pulse was soft and regular. The heart's apex was displaced two inches to the left, and a soft systolic murmur was audible over it. The tongue was moist, furred and tremulous. There was a slight blue line on the gums. For treatment the bowels were kept open and iodide and bromide of potassium were given, with an occasional dose of antipyrin for the exacerbations of headache. A fortnight later he was no better, and then tincture of digitalis was added to his mixture. Within a week from this marked improvement was observed, and all his symptoms had left him five weeks after admission. The vision improved and the optic neuritis became perceptibly less, but some yellow striæ developed around each macula lutea. During the last ten days the daily output of urine increased to fifty ounces, but its specific gravity decreased to 1006 to 1010, and the urea was found to be but 1 per cent. Four times during his five weeks in hospital a trace of albumen appeared in the urine. The blue line on the gums diminished, but had not quite disappeared when he was discharged.

Lead encephalopathy, tolerably frequent among the white-lead workers of Newcastle, is very rare in Nottinghamshire, though the more usual phenomena of plumbism, such as colic and wrist-drop, are not uncommon. This patient had been engaged for two years in "fine painting," during which time he remained healthy, but for three months before admission had taken to coarse work, in which much red lead was used, and had suffered in consequence an acute intoxication. In him, as in the girl workers in white lead mentioned by Dr. Oliver, the sudden introduction of lead into the system caused serious cerebral disturbance without any of the peripheral nerve degeneration usual in chronic plumbism. There was evidence also in the low specific gravity of the urine and the occasional albuminuria that the kidneys were affected by the poison, and it is probable that the condition of granular kidney will supervene. The fact that improvement did not commence until the iodide of potassium was supplemented by digitalis may be associated with the fact that there was cardiac dilatation without hypertrophy, which, again, was probably connected with the subacute renal degeneration. It is also of interest in connection with Dr. Dixon Mann's recent statement that iodides do not increase the elimination of lead from the system. In a case of wrist-drop from chronic plumbism recently under my care, which improved under iodides, I may mention that there was distinct anæsthesia in the area of distribution of the right radial and part of the right ulnar nerves, thus supporting the assertion of Dr. Judson Bury that the neuritic affection is not always confined to the motor nerves.

The two following cases illustrate the difficulties of diagnosis in typhoid fever.

Tuberculous meningitis.—A girl aged sixteen was sent into hospital for typhoid fever. She had been ailing for a fortnight, and was in bed for five days with fever, headache, and slight delirium, but no diarrhœa. On admission she was a well-nourished girl, lay on her back in a drowsy state, objected to being moved, and showed that her limbs were tender. The temperature was 101°, the pulse 104 and the respiration 20. The tongue was furred, the abdomen was full, there were no rose spots and the spleen could not be felt. A few râles were heard scattered over the lungs. The heart was normal. The right pupil was larger than the left, but both reacted normally. There was no paralysis of the external ocular muscles, face, tongue or limbs. The knee-jerks were normal. There was no optic neuritis. The hearing was normal, as was also the urine. The only symptoms pointing to brain disease rather than typhoid fever were the inequality of the pupils and the fact that the patient was rather more irritable than is usual in fever patients; but the former might have been natural to her, and the latter might be attributed to the nervousness of a girl above the usual class of hospital patients on first being brought among strangers. The normal condition of the knee-jerks and the absence of optic neuritis opposed the idea of cerebral mischief. For five days there was no change in the symptoms and the diagnosis remained doubtful; but on the sixth day the drowsiness increased, the knee-jerks disappeared and there was slight retraction of the head. The optic disks were still normal. On the seventh day after admission the patient passed into a state of stupor and on the eighth day, while still comatose, she died. The temperature had varied from 99° to 102°, but was subnormal just before death.

Necropsy.—There were tubercles in the pia mater all over the base of the brain, along the Sylvian fissures and on the cerebellar arteries. The cerebral ventricles were somewhat distended. Miliary tubercles studded the lungs and spleen, and there were a few in the kidneys and under the capsule of the liver. There was no inflammation or ulceration of the bowels.

A positive diagnosis during the first few days was, I think, impossible, although we inclined to the view of meningitis. It should be noted that the knee-jerks failed as a test, since they were retained till late in the disease, nor was headache ever a marked symptom. The absence of diarrhœa and the non-discovery of rose-spots and enlarged spleen are so common in typhoid fever—at least, in its early stages—that much importance could not be attached to these facts.

Typhoid fever and cerebellar tumor.—A young woman aged seventeen was sent into hospital with the diagnosis of typhoid fever from a house where four children had that disease. She had been in bed for sixteen days, suffering from headache, shiverings, cough and slight diarrhœa. Four days after admission (Feb. 13) she presented the usual appearance of a typhoid fever patient at the end of the second week. She rambled somewhat in her talk; the abdomen was slightly distended, the spleen could be felt, but no rose-spots were visible. There were rhonchi in both lungs and a systolic bruit was heard at the heart's apex. The urine was normal. There was some stiffness of the neck. The pupils were equal, large and reacted sluggishly. There was no ptosis. There were some weakness of both external recti and of the left internal rectus. There was double optic neuritis. There was no facial, lingual or limb paralysis. The knee-jerks were absent. The sphincters were normal. There was no sign of ear disease. The temperature was 102.4°, the pulse 104, and the respiration 26. On Feb. 21 the patient seemed better. The mental condition was fairly good, there was no delirium and no headache. The ocular paresis was less marked. The temperature varied from 99° to 101°. There was no diarrhœa. On the 25th she said she was better. The knee-jerks had returned, the plantar reflexes were exaggerated, and the optic neuritis had increased. Temperature, 99° to 103.4°. On the 27th there was intestinal hemorrhage, about three-quarters of a pint of blood being passed. On the 28th the breathing became sighing and the patient passed into a state of stupor. Purpuric patches appeared on the arms and legs. Both arms were rigid and flexed She could only move the shoulder of the right arm and the wrist of the left. Both legs were rigid and she could only move the right one slightly. Knee-jerk was absent on the right, but present on the left side. The plantar reflexes were still exaggerated. She was sensitive to a pinch on any part of the body. The pupils were contracted and there was nystagmus of the right eye. The abdomen was retracted. The temperature was 100.4°, the pulse 150, and respiration 16. On the 29th the patient was comatose and the limbs were flaccid. There were numerous petechiæ on the limbs and under the conjunctiva. Death supervened. The temperature was 98° a few hours before death.

Necropsy.—There were typical typhoid ulcers in the ileum, as well as numerous small hemorrhages under the visceral and parietal peritoneum, in the lungs and kidneys, in the pericranium, choroid plexuses and septum lucidum. In the right lobe of the cerebellum there was a tumor, an inch and a half in diameter, apparently growing from the pia mater and pressing deeply into the cerebellum and somewhat into the pons, from both of which it readily separated. There was much hemorrhage in the deepest part of the tumor. There was no free blood in the ventricles of the brain or in the cranial cavity. On microscopical examination the tumor proved to be a fibroma.

The diagnosis was in this case peculiarly difficult, there being strong evidence both of typhoid fever and of cerebral disease, and the coexistence of the two being rare. So far as we could learn the tumor had produced no symptoms before the attack of fever although it must have been present some time previously. Very soon after admission the strabismus, optic neuritis and loss of knee-jerks showed the existence of organic disease of the brain, but for a fortnight this did not appear to have an unfavorable influence on the disease. Then a purpuric condition seems to have set in, causing hemorrhage into the bowel, subcutaneous tissue, lungs and kidneys, and probably the hemorrhage into the cerebellar tumor. This last occurrence may be considered as the immediate cause of death. Extensive purpura must be rare in typhoid fever, and the question may be asked whether the tumor in any way led to its development.

CLINICAL LECTURE ON MISCARRIAGE AND PREMATURE LABOR; THEIR SYMPTOMS, COMPLICATIONS, AND TREATMENT.

Delivered at the Clinique Baudeloque, by Dr. A. Pinard, Professor of Clinical Obstetrics and Gynæcology at the Medical Faculty of Paris.

Among the patients who have been delivered here during the last few days there has been one whose case presents several points of interest, illustrating, as it does, certain peculiarities in the occurrence and progress of premature labor. The case will indeed serve to bring before you some points upon which I deem it necessary to insist because they present a very great importance from a practical point of view, so much so that if you have not these points clearly in your mind you will not be long in practice before experiencing serious embarrassment as to the course you ought to pursue, and for want of an understanding of their mechanism you will be liable to express opinions which will subsequently be falsified by the further progress of the case.

The patient is a woman who has already had several children born at term, one only being born dead. I cannot tell you why this particular child was still-born, but we need not take the trouble to inquire into this because all the other infants being healthy and the patient having had no miscarriages, there is nothing in this isolated occurrence to suggest the action of any specific poison. She was several months advanced in pregnancy on admission. She is unable to give us precise information as to when she last menstruated, but she tells us vaguely that she is about four months gone. This statement, moreover, corresponds with the size of the uterus and is confirmed by the results of clinical examination. From the date of the earlier symptoms of pregnancy she began to lose blood *per vaginam.* The hemorrhage recurred daily and continued up to the day before admission. She was admitted at 6 P.M., and applied not only because she was losing blood but also because she was suffering from pain referred to the region of the uterus. On examination the cervix was found to be fully dilated, that is to say as fully as one could expect under the circumstances, though in all probability the outer surface of the dilated cervix did not by any means come into contact with the pelvic walls. The membranes had ruptured and a fœtus presented by the breech. At 9 P.M. Mlle. Rose, the midwife in charge, withdrew the fœtus, for though with a normal fœtus at term the uterus is able to effect its complete expulsion this is not the case when the fœtus is of small dimensions, as in the present instance. The diminutive fœtus is expelled easily enough from the uterus, but on account of its small size it lies in the vagina and requires to be removed.

I may remind you *en passant* that breech presentations are frequent in proportion as pregnancy is less advanced, becoming less and less frequent as pregnancy advances. According to some statistics which I drew up in years gone by in reference to the frequency of breech presentations at various periods of gestation I found that between the fourth and fifth month the proportion of living children thus presenting was 38%, while of dead infants the proportion was 48%. This difference is in accordance with the laws of accommodation, with which you are all familiar.

To return, however, to our patient. Mlle. Rose removed the fœtus, leaving the placenta in the uterus, and this leads me to the question as to what is the best course to adopt under such circumstances. In this case hot antiseptic irrigations were administered, in order, as far as possible, to prevent decomposition of the detached portions of the placenta. This is the course we invariably adopt pending one or two indications for interference, viz.: hemorrhage or symptoms of septic intoxication. Yesterday this patient's temperature was 100.2° F., and there was some acceleration of the pulse. The discharge from the vagina, hitherto not very abundant, had become fœtid. Here then we had an indication for immediate interference, and Mlle. Rose, having introduced her hand into the vagina, was enabled, with her fingers, in the uterus, to practice the decortication of the adherent placenta, which you see before you. This was effected after introducing the hand several times, continuing the operation until all trace of a projection on the site of placental implantation had been removed.

Now, from the very commencement of this pregnancy the patient had been losing dark blood. When a woman from the beginning of pregnancy loses blood, it is customary to say that she is likely to abort; but the great point upon which I wish to insist is the persistence of the hemorrhage. We meet with women who thus lose blood during pregnancy, but at a given moment the sanguineous discharge ceases and pregnancy goes on to full term, so that we are not justified in asserting that the loss of blood is a sure or certain indication of impending abortion. I do not know a more painful predicament than that of the accoucheur *vis-à-vis* such a case. The woman is losing blood without any pain, and the question arises what is to be done. In the ordinary course of events, you will generally have to do with a woman who is losing blood and complains of pain, and on examination you find the cervix dilating or dilated, and then it is not difficult to know what course to adopt. But here was a woman early in pregnancy with hemorrhage, but no pain. Such a woman may go on losing blood for a week, two weeks, a month, two months, or it may be, as in the case before you, for four months. Of course the friends ask, is there going to be a miscarriage? The practitioner replies that he cannot say. How long will it last? I do not know, he replies. Is it normal? Is the child alive? These and many other questions will be asked, and the practitioner can only say that he does not know. What then must he do? Is it a normal thing for a woman to go on losing blood month after month in this way, and does it necessarily imply an impending abortion? I had a patient last year who was forced to remain four months in bed on account of a similar loss of blood, yet pregnancy went on nearly to term, and the child on delivery weighed 4,300 grammes. This, however, is certainly not the usual method of termination in such cases, and of that there can be no doubt.

When you are confronted with a pregnant woman who has been losing blood for two or three months, sometimes black, sometimes red, associated, it may be, with the discharge of a sero-sanguineous fluid, the first thing that will occur to you is the possibility of this being due to a blighted gestation, a degeneration of the chorion. The symptoms above described are doubtless those of chorionic degeneration, but can we make a diagnosis at this stage? Can we in fact affirm that the case is one of molar pregnancy? You cannot, as a matter of fact, and you must therefore act as if you had to do with a pregnancy likely to run on to term. You must do what you can *secundum artem* to prevent the recurrence of the hemorrhage, and act generally as if the pregnancy were likely to continue its development. What then is the treatment to adopt under such circumstances? First of all you must recognize that all movement is dangerous. The most absolute rest must be enjoined, rest in bed, and the patient must be formally cautioned against even putting her feet to the ground. I need hardly remind you that the presence of blood in the vagina renders necessary the most careful asepsis, which you will seek to obtain by frequently repeated antiseptic injections. The injections should be given hot and the nozzle of the instrument should not be pushed far into the vagina, only sufficiently, in fact, to secure the proper washing out of that cavity. It is quite a mistake to suppose that hot injections have a tendency to precipitate or expedite premature labor. Then you should endeavor to improve the general health of the patient by the administration of tonics, quinine for example. I am aware that quinine has been credited by certain observers with oxytocic effects, but years ago I carried out a series of investigations on this point and I never found that the administration of quinine, in anything like medicinal doses, had the slightest effect in exciting the uterus to contraction. The patient's nourishment should be of the lightest kind, principally milk, and having seen to this there is nothing else to be done for the time being.

But does this mean that the case is to be left to take care of itself? Oh no! You do not as yet know what is the matter with your patient, so you must look after her and keep her under observation. She is losing blood and there is nothing to account for it. It may be that she is losing blood simply because the placenta is implanted on the inferior segment of the uterus. You have seen such a case in one of our wards, in the person of a woman who was delivered in the fifth month of pregnancy on account of hemorrhage due to this cause. Placenta prævia, it is true, is generally regarded as an occurrence incidental to the last three months of pregnancy but you must not lose sight of the fact that it may and sometimes does determine serious hemorrhage much earlier. It may be, therefore, that your case is one of bleeding from this cause, but in all probability the etiology is very different. For instance, there may have been a hemorrhage into the decidua. We often find evidences of this in placentæ; you may find hemorrhagic foci disseminated here and there in the placental mass which may or may not have provoked abortion. I will not, however, discuss this cause further on the present occasion, although I may remark that bleeding from this cause may occur at any period of pregnancy.

The great thing is to closely watch your patient, and above all to attend to her general health. The hemorrhage in some of these cases, by reason of its abundance or its persistency, may reduce the patient to a condition of such debility that she may be utterly unable to endure the traumatism involved by miscarriage as a termination. She may in fact succumb to this last blow. The hemorrhage of abortion differs in several important respects from that of normal labor. The latter startles us by its suddenness, and it may carry the patient off at a few minutes' notice. This is not what we see in abortion. It is, on the contrary, the tenacity, the persistency of the hemorrhage that creates the risk. A woman may lose blood for several months in succession without marked detriment so far as the general health is concerned. She may still maintain the parallelism between temperature and pulse rate that indicates a fair condition of the general health. In such cases I should not think of interfering. There are other women who, after losing blood continuously for some time, sooner or later develop symptoms of acute anæmia. There may be no particular rise of the temperature, but the pulse goes up, to 120 per minute for example. I remember a case quite recently in which the patient was the wife of a medical man. She had been losing blood for about three months, and she died suddenly after abortion with the placenta still *in utero*, simply because she could not withstand the further drain on her resources. You cannot rely upon the appearances of the mucous membranes in some of these cases, and even in the absence of the characteristic pallor of the mucous membranes it may be your duty to intervene for the purpose of inducing premature labor. These cases are rare, but they sometimes present themselves, and then after calling on a *confrère* to ratify your opinion you will be justified in proceeding to empty the uterus. Then again we get the frequent pulse, the insomnia and all the other manifestations of anæmia, and although we might be sure that abortion is going to take place, yet our intervention would expose the woman to the hemorrhage incidental to the expulsion of the fœtus and placenta, which she may not be in a condition to support, and we must seek, therefore, to avert it, at any rate for the present.

Should you, however, decide that this course is the best to pursue all you have to do is to introduce the smallest rubber bag, completing the dilatation with the larger sizes. I repeat that some cases may call for this treatment, but not all, and it will be for you to decide according to the urgency of the symptons of each particular patient.

In the case of this patient our attention was drawn yesterday to the acceleration of the pulse, and it was this symptom that decided Mlle. Rose to intervene. Well, let us suppose in such a case that abortion takes place. The woman, we will assume, has not lost much blood. She expels the fœtus together with some clots. Things seem to be going on all right, but suddenly the woman has an attack of syncope and she dies, with symptoms of what for want of a better term you will call internal hemorrhage. It is extremely important that you should understand what this is and be able to distinguish it, for it may have no connection with hemorrhage Remark if you please that these syncopal attacks do not present themselves in women who give birth to a dead or macerated fœtus. This is a very curious fact. You have one woman with a dead and macerated fœtus, she is calm, her pulse keeps good and her condition inspires no anxiety. You have, on the other hand, a woman who gives birth to a living fœtus and you have to cope with a formidable syncopal attack for an hour or more. Why this is the case I cannot do more than surmise. I may, however, point out that one is a case of pregnancy proper and the other is not, and we are constrained to suppose that the mere condition of pregnancy determines in the woman certain liabilities from which women with dead fœtuses, and therefore no longer in a condition of pregnancy, are exempt.

Well, you have done all you can to prevent the further loss of blood, you will do well now to turn your attention to her surroundings and seek to calm the friends. One way of controlling the hemorrhage, of English origin I believe, is the administration of large doses of alcohol, half a liter or so of brandy for example What the effect of this treatment is I am unable to say, for I have never cared to put it to the test. Suppose in any case that you have given your patient a massive dose of brandy but the hemorrhage still continues. What can you do to prevent the further drain from the uterus? There is one simple means, viz.: Introduce a Barnes' bag into the uterine cavity and inflate it. That will offer a mechanical hindrance to the continuance of the outpour. It is said that women having given birth to a living fœtus and likely to exhibit these disquieting symptoms have a peculiar facies. This may be so in marked cases, but you will meet with every degree of severity, and the consequences to the patient are not always strictly in proportion to the amount of the loss.

We will assume that the fœtus has been expelled with little loss of blood, the patient looks well, but the placenta remains behind. What shall we do then? Now I object to immediate intervention in such cases. The treatment in cases of retention of the placenta after ordinary labor is altogether different from the treatment to adopt under similar circumstances as the sequel of an abortion. In the one case we obviate the danger altogether by at once introducing the hand into the uterus and removing the peccant organ. After abortion, on the other hand, there is no such need for immediate intervention. Having taken suitable antiseptic precautions we may await either hemorrhage or symptoms of septic absorption before going further. Therefore keep such a patient under close observation. A grave hemorrhage may occur more or less suddenly, it may be a week or even a month after the delivery of the fœtus. The immediate treatment in such a case, as I have already stated, is simply to plug the uterus with a Barnes' bag. If after its removal the hemorrhage persists then introduce the fingers and remove the placenta to the best of your ability by digital curetting in the manner I have already described. Should the hemorrhage take place with the fœtus still in the uterus it will be your duty to induce artificial labor.

Then as to septic accidents. The symptoms came on early in this case because the placenta was in part detached. If the placenta be adherent in its entirety, septic decomposition is less to be feared, at any rate for the time being, but of course if part of it has become, or has been intentionally detached, then the detached portion will promptly undergo decomposition with disturbance of the pulse and possibly fever. Do not wait for the characteristic rigor but proceed to act, *a fortiori* if the shivering has actually occurred. The only thing is digital curetting of the uterus. This can be done by any one whether in town or country without assistance and without waiting to procure any instruments. Remember only that the hand must be introduced into the vagina and the fingers into the uterus. It is no good trying to effect the removal of the placenta by means of the fingers in the vagina. The operation may require to be repeated and may take up considerable time, as was the case with the patient before you.

In particular cases certain instruments have been recommended to assist in the removal of the placenta and they may sometimes render service, but, to begin with, the fingers present incontestable advantages over any sort of instrument. I have seen cases in which the use of instruments proved unsuccessful where by means of the fingers the placental cotyledon was easily removed.

If there remain *debris* of the placenta inside the uterus then the woman will still present some fever, and if then you choose to introduce an instrument and make a cleaner sweep I have no objection, on condition, however, that you do not make use of cutting instruments.

The principal points then to which I wish to draw attention are

(1) That persistent hemorrhage in the earlier months of pregnancy does not necessarily involve abortion.

(2) That when and so long as the hemorrhage is unaccompanied by pain, the treatment must be to endeavor to check the hemorrhage by rest and appropriate diet, special attention being paid to the condition of the patient's general health.

(3) That in certain cases the supervention of symptoms of acute anæmia may render it necessary to induce artificial delivery.

(4) That it is undesirable to attempt the immediate removal of the placenta after abortion unless constrained thereto either by hemorrhage or by indications of septic absorption.

(5) That the hemorrhage, if severe, may in the first instance be controlled by means of a rubber bag introduced into the uterine cavity, and, lastly,

(6) That should the hemorrhage persist or symptoms of septic absorption declare themselves, recourse should be had to digital curetting for the removal of the adherent placenta.—*The Med. Week.*

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BACTERIOLOGY.

THE STRUGGLE BETWEEN THE ORGANISM AND THE MICROBE.—Sanarelli (*Ann. de l'Inst. Pasteur*) discusses the means by which the organism is defended against microbes after vaccination and during recovery. He studied the vaccinal immunity produced against the disease caused by vibrio Metschnikovi. At the outset he shows that this immunity cannot be due to any bactericidal property, to any attenuating power, nor yet to any antitoxic power possessed by the body fluids of the vaccinated animal, for he finds that the serum of vaccinated animals possesses no bactericidal power as maintained by Behring and Nissen, and the microbes grown in such serum increase rather than diminish in virulence. Further, the serum of vaccinated animals possesses no antitoxic properties; microbes developing in such serum actually produce more active toxins than when they are grown in ordinary nutrient media. Having eliminated these three possible causes of vaccinal immunity, he proceeds to show that the preventive and therapeutic properties of this serum depend upon the power possessed by it of causing active phagocytosis. The microbes are ingulfed by phagocytes, and inclosed in these they retain their vitality for a considerable time. He believes that although remaining alive at the seat of inoculation, these microbes produce no toxins after being inclosed in the phagocytes, for the blood-serum of such animals is not capable of destroying the toxins if they were elaborated. He finds that marked leucocytosis occurs in vaccinated animals, and in those treated by therapeutic serum, but the leucocytes undergo a most remarkable diminution in other cases. This he connects with the chemiotactic relations between the serum and the phagocytes. Preventive serum does not influence the diseased organism by any action on the bacteria, but by stimulating the proper cells to activity, thereby causing a concourse of phagocytes at the seat of inoculation. When this concourse of phagocytes is prevented, as by exposure to cold, the preventive serum has no effect and death results.

MICRO-ORGANISMS IN THE MILK OF HEALTHY LYING-IN WOMEN.—Palleske (*Virchow's Archiv.*) concludes, as the result of a series of researches, that micro-organisms are to be found in the milk of many healthy women—possibly fifty per cent. These germs belong to the cocci, and solely, as far as Palleske has himself determined, to the variety known as staphylococcus pyogenes albus It is doubted whether the germ reaches the mammary gland through the blood current, or enters the ducts from without. It is certain that the staphylococcus may actually abound in milk fresh from the mammary gland without the simultaneous or consequent occurrence of inflamed breast or general symptoms of fever.

THE VALUE OF A WATER ANALYSIS. By W. P. Mason —A great deal of popular misconception exists upon the subject of the analysis of potable water, and it is commonly supposed that such an examination may be looked upon from practically the same point of view as the analysis of an iron ore. That this belief is founded on fallacy may, however, be readily shown. When an iron ore is submitted for analysis, the chemist determines and reports upon the percentages of iron, phosphorus, sulphur, etc., found therein ; and at that point his duties usually cease, inasmuch as the ironmaster is ordinarily capable of interpreting the analysis for himself.

A water analysis, on the other hand, is really not an analysis at all, properly so-called, but is a series of experiments undertaken with a view to assist the judgment in determining the potability of the supply. The methods of conducting these experiments are largely influenced by the individual preferences of the analyst, and are far from being uniform or always capable of comparison, thus often introducing elements of confusion where two or more chemists are employed to analyze the same water. Some of the substances reported, "albuminoid ammonia," for instance, do not exist ready formed in the water at all, and are but the imperfect experimental measures of the objectionable organic constituents, which our present lack of knowledge prevents our estimating directly. Thus the numerical results of a water analysis are not only unintelligible to the general public, but are not always capable of interpretation by a chemist, unless he be acquainted with the surroundings of the spot whence the sample was drawn, and be posted as to the analytical methods employed.

It is very common for water to be sent for analysis, with the request that an opinion be returned as to its suitability for potable uses, while at the same time all information as to its source is not only unfurnished but is intentionally withheld, with a view of rendering the desired report unprejudiced in character. Such action is not only a reflection upon the moral quality of the chemist, but it seriously hampers him in his efforts to formulate an opinion from the analytical results. For instance, a large quantity of common salt is a cause for suspicion when found in drinking water, not because of any poisonous property attaching to the salt itself, but because it is usually difficult to explain its presence in quantity except upon the supposition of the infiltration of sewage; yet an amount of salt sufficient to condemn the water from a shallow well in the Hudson Valley could be passed as unobjectionable if found in a deep-well water from near Syracuse, N Y.

We thus see how important it is for the chemist to be fully acquainted with the history of the water he is to examine, in order that he may compare his results in "chlorin" with the "normal chlorin" of the section whence the sample is taken. A knowledge of the history of the water is no less important in order to interpret the remaining items of a water analysis. Some time since a water was sent from Florida to this laboratory for examination, and was found to contain 1.18 parts "free ammonia" per million. Much "free ammonia" commonly points to contamination from animal sources, and had it not been known that the water in question was derived from the melting of artificial ice made by the ammonia process, the enormous quantity of ammonia would have condemned it beyond a peradventure. As it was, the water was pronounced pure, the other items of the analysis having been found unobjectionable.

Analytical results which would condemn a surface-water are unobjectionable for water from an artesian well, for the reason that in the latter case high figures in "free ammonia," "chlorin," or "nitrates" are capable of an explanation other than that of sewage infiltration. Even though such water should have, at a previous period, come in contact with objectionable organic waste material, yet the intervening length of time and great distance of underground flow would have furnished abundant opportunity for thorough oxidation and purification. "Deep" samples taken from the same lake, at the same spot and depth, will greatly vary in analytical results if the temperature of the water at the several dates of sampling should be markedly different owing to the disturbing influence of vertical currents.

Thus it is that a chemist must be in full possession of all the facts concerning the water which he is asked to examine, in order that his opinion as to its purity may be based upon the entire breadth of his past experience, for in no branch of chemical work is experience and good judgment better exercised than in the interpretation of a water analysis.

Disinfection by Ammonia Vapor.—Prompted by the good results he obtained in certain laboratory experiments, the object of which was the destruction of certain pathogenic organisms by ammonia vapor, v. Rigler (*Centralbl. f. Bakt.*, May 17, 1893) has investigated the disinfectant properties of this vapor on a larger and more practical scale. He proceeded as follows:

Sterilized cotton threads were dipped in pure cultures of various bacilli (cholera, typhoid, anthrax, diphtheria), and, after thorough impregnation, exposed to the vapor of liq. ammon. pur. in a closed room. The fluid was simply poured out in flat dishes. Certain of the threads were exposed directly to the vapor; others were wrapped in dry cloth, and others again, in wet cloth, in each case folded eight times, and sterilized; these were then exposed. After the expiration of a period varying from one to several hours, the threads were removed and transferred to nutrient media. The results were as follows: Exposure either directly or in a dry cloth served to destroy the organisms specified in from two to four hours, the media inoculated after this period remaining sterile. Exposure in a wet cloth required, for the same purpose, a longer period, from four to eight hours. Even anthrax spores were destroyed in the time stated. Plate cultures prepared from control threads which had been exposed to pure air under precisely analogous conditions showed innumerable colonies, even after twenty-four hours' exposure, except in the case of cholera. Here exposure, directly or in dry cloth, sterilized the threads in three hours, while abundant growth was obtained from those in wet cloth even after forty-eight hours. From these results v. Rigler concludes that ammonia vapor is a powerful disinfectant, especially when acting upon substances in the dry state. He recommends its use in general disinfection (rooms, clothes, furniture). The vapor does not injure materials submitted to it. The cost of ammonia is small. About 1 kg. will disinfect a space 100 km. volume in eight to ten hours.—*Br. Med. Jour.*

New Mode of Demonstrating Microbes which do not Stain by Gram's Method.—Nicolle (*Ann. de l'Inst. Pasteur*) describes a method of demonstrating some bacteria which are otherwise difficult to differentiate. The method depends on the property possessed by tannin of converting methylene blue fixed in the preparations into an insoluble form. The method of procedure is as follows: The sections are hardened in alcohol, and stained for two or three minutes in Loeffler's or Kuhne's blue; they are then washed in water, after which they are passed through a 1-10 solution of tannin, the action of which is almost instantaneous; the sections are then washed again in water, dehydrated, cleared in oil of cloves or bergamot, and mounted in xylol-balsam. A greater contrast can be obtained between microbes and tissues if the sections, after being stained, are slightly decolorized by immersion in a feebly acid water. The histological elements are thereby more decolorized than the bacteria. In this manner the author has succeeded in obtaining excellent results in sections of glanders, typhoid, hog cholera, chicken cholera, soft chancre, etc., a thing which is by no means easy when the old methods are employed.

A NEW antiseptic has been brought to the notice of the medical profession, which is claimed to be superior to all those now in use. It consists of a solution of formic aldehyde (HCOH) in water, and is found to be fatal to anthrax bacilli in a solution of 1:50,000. Its microbicidal power is thus equal to corrosive sublimate, and it possesses the advantages of not coagulating albuminoid solutions, of being less poisonous, and of attacking only the substance of the contagious material, leaving intact the articles treated, whether of organic or inorganic nature. If these claims are borne out by the results of its more extended use, it will prove a most valuable addition to our list of germicides and disinfectants.

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A POST-GRADUATE LECTURE ON THE NERVOUS SEQUELÆ OF INFLUENZA.

Delivered at the National Hospital for the Paralyzed and Epileptic, Queen-square, W. C., on June 15th, 1893, by W. R. GOWERS, M.D., Lond., F.R.S., etc., Physician to the Hospital and Consulting Physician to University College Hospital.

GENTLEMEN: "The evil that men do lives after them," and the statement is as true of individual maladies as of individual men. It is conspicuously true of the acute febrile diseases, the effects of which persist for months, and sometimes years elapse before the sufferer regains his former level of health. Besides the direct depression of strength which all acute diseases entail, these maladies are often followed by morbid processes which are, in effect, secondary diseases, having their own injurious results, although they are themselves the consequence of the primary affection. The frequency varies with which such secondary maladies follow the acute diseases; some have one special consequence, while others may be followed by any one of many morbid processes, trivial or grave, prompt or tardy in occurrence. Perhaps there is no disease which is so often followed by these secondary affections, and in which they are at the same time so varied, as the strange disease of which we have lately had such abundant experience—influenza. I can scarcely err in assuming your intimate knowledge of its characteristics, because there are few adults in this country who have not experienced the sufferings it causes, and I shall not be far wrong if I venture to assume that there are few medical practitioners who have not gained a knowledge of the disease in the most useful, but least pleasant of all schools—that of personal experience. The disease is, we may reasonably hope, at last passing away, but the evil it has done is with us still; for this reason, and because its sequelæ consist, for the most part, of disturbances of the nervous system, I have thought that it might be useful to you if I take this opportunity of giving you an outline of the chief affections which occur as the consequences of influenza. It may be especially useful to you, because many of these are now coming under the notice of practitioners, and some are of such a character, and occur in such relations, that their connection with the primary affection may easily be overlooked.

Influenza is a strange disease. Among the features it presents which cannot but excite surprise not the least surprising is this, that about eight times each century, for at least 300 years—and probably at longer intervals, for more than twice that time—wave after wave of the disease has passed over England and over Europe generally, and not over Europe only, but over all the temperate regions of the earth, and each one has come and gone and left mankind no wiser than before. With the rapidly increasing means of investigation and increased ability to study disease that modern times have brought, the statement is not less true of the epidemics of this century than of those which have gone before it. In spite of the vast augmentation in the means of research, in the knowledge of the nature of disease and of where and how to search for its indications, the recent epidemic has likewise come and gone, or at least is going, with its mystery unrevealed. It has kept its secret from the keen eyes of the present day, with all their aids to observation, as it kept it from the eyes, not less keen but unaided, of the older time. Facts regarding it have been gathered on which theories, more or less unsubstantial, may be built; but so little definite foundation, even for hypothesis, has been secured that we cannot feel surprised if some future epidemic should show to the still better equipped investigators of that day that the real facts concerning the nature and mode of extension of the disease are not those which seem to us most likely. But when we look at the malady as it has recently presented itself to us, and when we compare its features, both as affecting the individual and as an epidemic malady, with those of the acute specific diseases, it is difficult to resist the conclusion that its nature must correspond with that of other maladies which have been proved to be due to what is termed an "organized virus"—that is, to living organisms and not to a single chemical agent; and this throws light upon some of the effects of the disease on the nervous system. We find among its sequelæ diseases which are occasionally met with as the consequences of unquestionable specific maladies known to depend upon an "organized virus." Although these consequences of influenza are not common their relation to it is very distinct. I may mention two in particular—meningitis and multiple neuritis. The latter is especially important because we know a good deal about the other causes on which it depends. We know that whenever we find symmetrical inflammation of the nerves of the limbs, developing as an acute or subacute disorder, we are justified in assuming that there is a toxic agent circulating in the blood, of which it is the result. So clear is this fact that we are justified in coming to the same conclusion in the cases in which it follows, sometimes at an interval of several weeks, an acute specific disease, such as small-pox. The explanation generally received of the interval which separates the consequence and the cause, an explanation that has certainly a high degree of probability, is that such multiple neuritis is the result of a chemical substance formed by the organisms which constitute the virus of the primary disease in the process of their growth in the system. The primary disease is ascribed to the presence of the organisms, the secondary disease to the material which they produce. The theory that the latter depends upon such a chemical substance, or "toxine," and not on the organisms themselves, is supported by all that we certainly know of the causation of such neuritis. It may be produced by metallic poisons such as lead and arsenic; it may be also caused by chemical substances of organic nature such as alcohol, which is a product of the growth of minute organisms outside the body. It is certain that morbid processes in the nerves and elsewhere after other diseases (as diphtheria[1]) are due to a toxic agent of chemical nature, and hence we may conclude that it is so in the case of post-influenzal neuritis. If this conclusion is valid the reversal of the process of reasoning may lead us to assume that the antecedent disease is due to the presence of organisms in the system. This has been the conclusion of many investigators, and indeed of most of those who have endeavored to find some explanation of the malady and of its after-effects. It deserves our notice because it enables us to grasp more comprehensively the various phenomena we are about to notice.

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[1] Martin: Gulstonian Lectures, 1893.

Before we discuss the effects of influenza on the nervous system I may caution you to beware of regarding all that follows a disease as its direct effect. Every acute disease leaves behind it feeble health, and feeble health, to whatever cause it is due, is a potent agent in predisposing to disease of many kinds. Many of those who are generally weakened by influenza become, in consequence of this mere weakness, at some time or other the subjects of disease which has no direct connection with the cause of the weakness. Yet, we sometimes read of a result of influenza, attributed directly to it, which only commenced after a year of general debility. We ought to regard as the actual sequelæ of influenza only those affections which come on within a few weeks of the primary malady or which, if a little longer delayed, are of the same nature as those which are common at an earlier period. We have all and always to keep before our minds the danger of an unconscious fall into the *post propter* fallacy. This caution is the more necessary because my special object to-day is to direct your attention to the sequelæ of influenza some of which may not be thought to be consequences of the disease, either because their onset is separated from it by an interval greater than usual, because they often follow an attack of influenza which is very slight in character, and also because some of them are not common, so that even those practitioners who have seen many cases of influenza may not at first recognize the relation to it of one of these less common sequelæ. But I must briefly mention also those which are common, in order that the others may fall into their proper place.

The manner in which the nervous system is disturbed in some of its functions in the course, and especially at the onset, of the primary disease must be so familiar to you as to make a description of it superfluous. The severity of the headache, the pain in the back, and the mental and the physical depression, are almost more than familiar; but it is necessary to note the disturbance which occurs in the primary disease because many of the subsequent symptoms are either a prolongation of those of the influenza or they are, as it were, a modified repetition of them after an interval of time. Two general facts regarding these sequelæ are of especial importance. One is that their occurrence—at any rate, the occurrence of many that are most troublesome from their character and duration—bears no relation to the severity of the primary disease. They follow attacks of influenza which are slight as well as those which are severe. In this respect they resemble the well-known character of the sequelæ of some other acute specific diseases. The disparity between the causal disease and its consequence is notorious, for instance in the case of diphtheria, in which the most severe paralysis may follow an attack which is of the most trifling degree. A second general fact, and one that is, indeed, connected in some measure with the first, is that many of the most serious sequelæ follow second or third attacks of influenza. The disease, as you know well, affords no protection against a recurrence, resembling in this the diseases which seem to be only just attaining specificity so far as causation is concerned—diphtheria and typhoid fever. Moreover, as a rule, second or third attacks of influenza are much less severe than the first. I believe that this is true also of typhoid fever. But the mildness of these recurrences, together with the fact that certain grave sequelæ are more apt to follow them than the first attack, have a tendency, very often, to make the observer fail to recognize the relation of the sequel to its cause.

The first symptom of the primary disease which we may specially note, is the pain that is felt in the back, and, to a less extent, in the limbs. Pain may be felt in the spine, but the worst pain is in connection with the muscles of the back, especially in the lumbar region, where it is very much like the pain that precedes small-pox. Its seat is apparently the fibrous tissues between the muscles, and about them and the spinal column. It is lumbago, but is more extensive than the common form, and with the addition of spontaneous pain. It seems to have its origin in the nerves which terminate in the fibrous tissues, or in the muscles themselves. It resembles what is called "rheumatism" of those tissues, and the importance of it, for our present subject, is that chronic rheumatism of the fibrous tissues is occasionally a most troublesome sequel of influenza. It is a consequence, moreover, that is probably significant in more respects than we can clearly perceive, and especially in connection with the conception of influenza as a specialized catarrh, apparently sometimes excited by cold; whether this is real or only seeming, it often resembles in many features common "colds." It has thus a relation, probably more than superficial, with the conditions that produce this rheumatic state. The conditions which are included under the term "fibrous rheumatism," those, for instance, of which lumbago is a type, have received very little minute and exact study. Our conception of its symptoms is definite enough, at least in the mind and memory of most of those who have reached middle life, but our conceptions of its nature are extremely vague, and we are apt to transfer to the process the vagueness of our ideas. We think of it as a sort of intangible hyperæsthetic state. I know of no observations on any histological changes that underlie it, but I know of no attempt to discover any. Opportunities, it is true, are rare, especially to those who can make good use of them, but there are many fatal affections due to cold in which such pains have occurred not very long before death, and in patients who have suffered from many attacks of this character, it is possible that some permanent traces of tissue change might be found. A search for them is the more important, because, whatever may be the nature of this transitory fibrous rheumatism, one thing is certain—it is capable of spreading and becoming, in a suitable seat, a process of actual and even severe inflammation, with all the tissue-changes which inflammation entails. Many cases of sciatic neuritis arise in this manner. True lumbago, or that form which has its seat over the sacrum, and is related to movement, is distinctly seated in the tendinous attachments of the muscles; the rheumatic pains may spread along the fasciæ to the sciatic notch, and there, reaching the sheath of the nerve, may be transformed into an inflammation of this sheath, with all its characteristic and enduring symptoms. The inflammation may spread into the interstitial tissue of the nerve and its fibers may suffer in their conducting functions by the compression of the inflammatory products, so that muscular wasting and areas of anæsthesia may afford conclusive proof that grave organic changes have resulted from that which was, in its early stage, the process which we call "simple fibrous rheumatism."

As I have just said, such rheumatism is not uncommon as a sequel to influenza, and it is especially common at the present time, having, in many cases, succeeded a comparatively slight recurrence of the disease. The pains in the muscles of the back or about the muscles of the limbs continue, or those of the primary affection may cease and be renewed after an interval of a few days, or at most of a few weeks. They spread in one or many regions, but often become fixed in some one district, and continue there as pain on movement, sometimes even pain at rest, with tenderness, also, on pressure. Nerves in the vicinity of the affected fibrous tissues may become distinctly tender, and spontaneous pain may follow their course, while that on movement is felt through a wider area.

These persistent rheumatic affections after influenza occur especially in those who inherit a predisposition to gout, or to that form of rheumatism which is allied to gout and is so often a result of this disease in ancestors. They occur chiefly in persons who are in the later periods of life, of either sex; but these affections occur also independently of this cause. Most practitioners, and all whose work is in rural districts, must be familiar with the great frequency of chronic fibrous rheumatism in the old, how often it anticipates the effect of age in disabling the laborer, in whose inheritance gout assuredly has no place. The constitutional state which gives rise to it seems to be the result of the circulation in the blood of imperfectly changed products of the metabolism of the tissues, increased by imperfect digestive change in the material which the blood conveys to the tissues. Such imperfection is probably the result of the degenerative changes in the various organs which are concerned with the transformation of the substances ingested, and with the due changes in those which should be prepared for expulsion from the system, and the effect of the inadequacy of the organs is to overload the blood with chemical substances of a more or less toxic character, closely allied to those which are probably the active agents in causing many of the manifestations of gout. You have doubtless not failed to note the growing tendency to regard the retention of uric acid as only one element in gout. It seems to be the agent in causing arthritis and some other local processes, but to be accompanied in the blood by other material, also the result of the imperfection in the constitutional chemistry, which is, perhaps, more potent in deranging the nervous system. If so, we can more readily understand that some elements in gout should be almost incidental to age, and that those who inherit the latter malady, who have led careful lives, indisposing the inherited diathesis to manifest itself in the common manner, should suffer severely from these additional influences which age brings with it, and often then become the subjects of intense and acute forms of articular inflammation. Such a train of causes is to be traced in most of the subjects of the severer rheumatic sequelæ of influenza, which seems often to supply the pathogenic influence required to induce activity in the latent tendencies. These patients have not suffered until the acute disease added its special toxic influence to that which before was without manifest effect, and might have remained so; but under this potent reinforcement rheumatic affections may become, as I have said, extremely severe, and attain, in many cases, such a degree and fixation that the sufferer's failing powers, are, in many cases, quite inadequate to liberate the system from the toils in which it has become bound.

Not long since I saw a lady of seventy to whom all that I have said applied precisely. After influenza rheumatic pains persisted and became fixed at last in the spine, and the whole spine was so tender and so painful that her life was a burden. The pains radiated from it and were also felt in the arms and hands, and in the fingers and wrists the fibrous tissues had suffered so much as to practically disable the limbs, and her general suffering was such as to prevent her leaving her bed. This state had existed for a year and there seemed to be no prospect that it would pass away. In another case, that of a man of the same age, the rheumatic pains had become fixed in the right lumbar region and had extended to the right lower half of the abdomen and to the upper part of the thigh on its front and outer side. They were most severe and were accompanied with great tenderness; but a careful examination showed that all the tenderness was in the fibrous structures of the wall of the abdomen, and the pain took the course of the nerves. The fibrous tissues about the joints may, in these cases, suffer to an extent that induces thickening and the inflammation may pass within the capsule. So, in one patient, aged sixty, a state had developed in the hands indistinguishable from chronic rheumatoid arthritis, with nodular swelling of the joints, adhesions, pain and tenderness, with the "arthropathic muscular wasting." But of all this there was no trace before the influenza. In such cases, besides the pain that we must refer to the fibrous tissues, there is special pain along the nerves, suggesting that a secondary neuritis might have occurred and induced the secondary pains of a neuralgic character that are its frequent sequel. In other cases such nerve pains preponderate over the symptoms of an affection of the fibrous tissues, and the pain may quickly assume a more typical neuralgic character, occurring in paroxysms and sometimes changing its seat. It is then a matter of doubt how far the original affection was an intense neuralgia or an actual neuritis of limited seat, but in most of the cases that come into this group a limited primary neuritis is the more probable. A hard-working lawyer of sixty-three, who had been liable to neuralgia, had an attack of influenza in which the pain in the back was very severe. When the acute disease was over this pain did not cease but, became fixed about the lower dorsal and lumbar spine and gradually extended obliquely forward and downward on each side of the abdomen, apparently in the course of the lower dorsal and lumbar nerves. At first it was spontaneous and more or less paroxysmal, but when I saw him six months after the onset it was gradually subsiding, had ceased to be spontaneous and was felt only on movement. Again, a young and active medical practitioner had an attack of influenza which was not severe—not severe enough, indeed, to compel him to use the necessary caution. He yielded to the urgent claims of others, which have made the disease so fatal in our profession, and went about before he was well; a relapse compelled him again to take to bed, and there he had to stay for three months. In a few days severe pain came on in the right side of the chest, about the ninth or tenth intercostal nerves. It was so intense that for weeks he could not lie down in bed, and the inhibition of respiration caused constant gasping dyspnœa. Not the slightest trace of intrathoracic mischief could be discovered, but the pain went on, and only ceased occasionally on the right side, when it was felt, in less degree, in the corresponding part of the left side. It disabled him for work for several months, and even then, although slighter, it still occurred and was felt from time to time. Even three years after the primary illness it troubled him, being chiefly excited by exertion and sometimes lasting for a week. The pain was at first, and indeed always, accompanied with tenderness and he had occasional pains in the lower part of the spine.

The most common form of nerve-pain after influenza is, however, primary neuralgia, in which there is no suspicion of neuritis, in spite of the fact that this also may be accompanied by some rheumatic pain. On the same page of my case book on which the last is recorded I find the notes of another which illustrates the manner in which neuralgic pains may seem to grow out of the severe, headache of influenza. In this patient, a man of fifty-two, the pain persisted in more limited position, occupying the frontal region and becoming distinctly paroxysmal. It continued and had become almost constant when I saw him four months after the influenza; sharp pain started from the bridge of the nose and passed to each temple, and when severe would extend in less degree to the back of the head. Exacerbations, lasting two or three days, often occurred. and during them slight pain was felt in the eyes, and their use induced a feeling of giddiness. In this case no antecedent predisposition could be traced. The most common seat for post-influenzal neuralgia is in the region of the head, as might be expected from the pain of the primary disease. The most frequent varieties are : supra-orbital, supra-maxillary, ophthalmic, cervico-occipital and cervico-brachial; but it is not uncommon in the arm and side of the chest, and in certain cases it is apparently determined by some local influence. Thus, a lady had an innocent tumor in the left breast and soon afterward endured an attack of influenza, in which the pain first fixed itself in the breast and then extended to the left arm, becoming there particularly severe. The tumor of the breast was removed, but the pain in the arm continued up to the time I saw her, a year after the influenza, and then extended down the inner side of the arm and forearm to the inner or sometimes to the outer side of the hand. When severe it radiated to the scapula, and sometimes was felt in slight degree in the other arm. Except for a history of lumbago, there was no indication of a diathetic predisposition. It is an instance of the extremely prolonged duration of some of the cases of post-influenzal neuralgia.

(*To be concluded.*)

PROCEEDINGS OF SOCIETIES.

AMERICAN NEUROLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, held at the West End Hotel, Long Branch, N. J., July 25, 26 and 27, 1893.

FIRST DAY, TUESDAY, JULY 25.

President's Address.—The President's Address was delivered by Dr. Henry M. Lyman, of Chicago. After some reminiscent remarks relating to the study of nervous diseases he called attention to their predisposing causes, and said that we must not be content with the simple recognition of disease, but we must be able to classify it etiologically as well.

Rheumatism Affecting the Nervous System.—Such is the fact with regard to this condition. The marked forms chiefly affecting sensation are not so commonly recognized and are frequently ascribed to other causes. They are usually observed in elderly people of a nervous temperament and an arthritic diathesis, and differ from many other similar disorders of sensation in being transient, vagrant and of brief duration. Among these ailments is a universal prickling over the surface of the skin; sometimes it is limited to certain points, where the patient experiences a sudden sharp prick, like a flea-bite. This may interfere with or delay sleep. Another disorder of cutaneous sensation often affects the scalp, and is occasioned by irritation of the superficial nerves of that region. The duration of the attack rarely exceeds a single day. Closely associated with these disorders are the various transient perversions of sensation that may be felt in the Eustachian tubes, the pharynx, and about the fauces. Another of the symptoms of masked rheumatism is a peculiar and disagreeable feeling in the tongue. This sometimes assumes the severity of a genuine neuralgia, and manifests a greater degree of persistence when associated with obesity, diabetes, or gout than when connected with rheumatism alone. The œsophagus and fauces and sometimes the muscles of the eyeballs are similarly affected. These patients are also attacked by a paroxysmal cough associated with headache. The most distressing of all these forms of pain is gastralgia. The previous history and the concurrence of other rheumatic symptoms of a more stable character will, of course, add greatly to the certainty of the diagnosis.

Heterogeneous Personality.—Dr. Smith Baker, of Utica, read a paper with this title. He defined heterogeneous personality as that condition in which the characteristics of ancestry are not blended into a permanent whole, and reported the case of a little girl who presented frequently recurrent attacks of functional perversions and distress which could not be satisfactorily explained except upon the inference that the dissimilar traits noticeable in her grandparents had not been blended in the personality of her mother, and so had proved to be the ground-field of the grandchild's affection. But the question arises, Is such a view of the case professional or scientific good sense?

We can never answer intelligently until the commoner facts of family life shall have been more minutely studied. Thus, such trite matters as dreams, somnambulism, the solving of problems unconsciously or subconsciously, the up-rush of facts and arguments in the act of composition, and the play of genius, should be investigated.

Inquiries in states of acute illness, and the study of moods and transformations of character, etc., all should receive more attention by physicians in order that causation in cases of functional derangement may be the more accurately conceived. In doing this, assistance may be found in many instances of so-called reflex disease. Heterogeneous personality should always be looked for in the neuropathic constitution. But more particularly is this of use in considering the problems presented by neurasthenia and the sexual perversions. Not so frequently, perhaps, is the trouble owing to the commonly assumed overwork, etc., as to the unceasing warfare within, between the "lower" impulse and the "higher" determination. Students, professional men, and many others whose physical abnormities or mental peculiarities reveal the sensitive, easily impressed nature, are especially apt to be victims of the uncoalesced personality. Its bearing upon questions of marriage and parentage renders it worthy the attention of all.

Dr. Lyons, of New York, referred to the opposite sides of character as seen among the insane. An educated woman may be agreeable and lovable in her normal condition, but vicious when in the abnormal state. He knew of such a patient who would frequently apologize and do her utmost to resist the impulses to do wrong. He thought that such behavior might be due to abnormity in the development of the celebral hemispheres or to some interference with the circulation.

Dr. Parsons, of Sing Sing, expressed the view that in persons with a tendency to evil thinking and acting, such might be overcome by suitable environment. After a time the absence of restraint permits of a continuance or permanency of the abnormal condition. This would probably account for many of these cases

Dr. Hinsdale, of Philadelphia, spoke of two authenticated cases of double consciousness. He thought that the medico-legal features of such cases, as well as those of changes in personality, were of special interest, and should be reported and carefully analyzed.

Dr. Seguin, of New York, believed that atavism was the more rational explanation. Blending of the characteristics of ancestors occurs normally. It was not right to confuse double-consciousness of an epileptic nature with conflicts of character and personality.

Dr. J. J. Putnam, of Boston, said that the treatment rested upon the systematic development of character. Hypnotism has taught us much in regard to this condition, and brings out in a striking manner certain phases of character. He recommended the development of the inhibitory powers.

Dr F. X. Dercum, of Philadelphia, thought the case reported by Dr. Baker recalled the fact that there was lowered vitality at certain epochs in women. Relationship between states of health might account for the peculiar mental variations.

Dr. Baker in closing the discussion referred to the various definitions of personality as being not sufficiently inclusive of the facts to be of accurate use. He urged the importance of the study of the subject, especially in its bearing not only upon the causation of actual disease but in its relation to all our educational ideas and practices as found to-day in our school system. In this way we find means of obviating detrimental traits, and also of making dominant those more desirable and healthful.

Detention Hospitals for the Insane.—Dr. Matthew D. Field, of New York, read this paper. After speaking of the wrongs inflicted upon the insane by committing them to county jails and prisons, there to mingle with tramps while awaiting the appointing of physicians to pronounce upon their mental condition, he gave a description of the Reception Pavilion for the Insane at Bellevue Hospital, and the methods of examination and commitment by the city examiners. He declared the pavilion to be in every respect a hospital, with resident physicians and competent trained attendants. Though a plain and inexpensive building, it served its purpose very well. He advocated the establishment in all large cities of similar hospitals for the reception of those suspected of lunacy. He said that an ideal institution for this purpose would be a hospital constructed on the pavilion plan for the reception of the insane, inebriate, and neurotic, with a small amphitheatre and sufficient wards for proper classification and detention for a reasonable time. A competent visiting, resident, and examining staff of medical officers should be chosen, and clinical instruction regularly given. Such a hospital would secure prompt, humane, and scientific treatment. The opportunity for longer observation, securing histories and examinations, would result in more complete and accurate certification. There being no need for hasty transfer to other institutions, the feeble, sick, and certain selected cases could be detained for treatment, and clinical instruction would be easily accessible to the entire medical profession.

Dr. Knapp, of Boston, said that there are no detention hospitals in Boston, and they have felt no urgent need for them under existing Massachusetts laws. A few emergency cases requiring immediate restraint are admitted to the general hospitals. Otherwise they can be taken at once to the nearest asylum on emergency certificates. These consist of two separate certificates. A bond must be given by the superintendent or one of the physicians to the effect that the patient is to be formally committed or released within five days. This system has proved eminently satisfactory and has rarely been abused.

Dr. Mills, of Philadelphia, stated that the method described by Dr. Field was in vogue at the Philadelphia Hospital. There was a detention ward for isolating cases of insanity. Two physicians are assigned to examine these patients before commitment. This ward has also been used for several years for clinical instruction.

Dr. Preston, of Baltimore, remarked that their lunacy laws were inadequate. They are endeavoring to establish a detention ward. At present insane patients are kept at police stations, as no general hospital is prepared to receive them. Their method of dealing with such cases is entirely unsatisfactory.

Dr. Parsons agreed with Dr. Field, and believed that such a ward would serve to diminish the number of improper cases sent to asylums.

Dr. Baker thought that a detention ward would prove extremely valuable for suspected cases of insanity as found in private practice.

The President said that in Chicago they have such a ward in the City Hospital where these cases are detained until transferred. Their commitment laws are now quite satisfactory.

The Temperature in General Paralysis of the Insane.—Dr. Frederick Peterson, of New York, read a paper with this title. He first reviewed the literature of the subject, calling attention to the statements of the various authorities that there are in general paresis extraordinary daily variations of temperature, that the average bodily temperatures are subnormal or hyperpyrexic, and that axillary asymmetry of temperature is particularly frequent. With the assistance of Dr. Langdon the temperature of twenty-five cases from the wards of the Hudson River State Hospital for the Insane was carefully studied. Observations were made every two hours for one week in each case, and in ten cases temperatures were taken in the two axillæ simultaneously every two to four hours for a week. He had reached the following conclusions :

1. As regards the average bodily temperature, it corresponds with physiological norms. The statements in literature as to hyperpyrexic or subnormal averages could not be sustained.

2. The diurnal oscillations of temperature in paretics also correspond to physiological norms. Observations found in literature as to frequent extraordinary daily variations in such cases seemed to be absolutely erroneous.

3. Asymmetrical axillary differences were so small that they could not be considered as abnormal, and certainly not of any diagnostic significance.

4. When unusual variations of temperature occur in general paretics, their cause must be sought for in conditions not related to the pathological phenomena of paralytic dementia, but depending upon other thermogenic features unrecognized by the physician, or "masked" by the mental state of the patient. Thus in Case 2 of his series an increasing hyperpyrexia was noted during the second week's observations, but the pneumonia causing it was "masked" until the fifth or sixth day, the patient dying on the sixth day. Again, in Case 10, where the highest single daily oscillation was 3.4°, and the average daily oscillations for the week 2.2° F., the patient had bed-sores on the sacrum and heels, and was undoubtedly somewhat septicæmic. That the temperature might vary in the paralytic seizures of these cases was not gainsaid, no observations having been taken in such conditions.

Dr. Gray, of New York, said that a large number of different pathological conditions are often included under the name of general paresis. He thought a number represent the terminal stages of intracranial syphilis.

Dr. Isaac Ott, of Easton, Pa., did not believe that the heat centers could be located from the symptoms of general paresis.

Dr. J. J. Putnam mentioned that he had occasionally noted oscillations of temperature in paretics.

Dr. B. Sachs, of New York, agreed with Dr. Gray as to the question of diagnosis The results of his observations coincided with those of Dr. Peterson. He had recorded the rectal temperature. Elevations were often due to complications from gastric disturbances. The temperature was usually a little higher than in those who had no organic disease. He inquired if clinical studies of the heat centers had ever been made.

Dr. Ott, in reply, said that he knew of only two cases of pistol-shot injury to the brain associated with immediate rise of temperature.

Dr. Parsons remarked that in one of his cases the temperature was always normal.

Dr. Charles K. Mills, of Philadelphia, regarded the manifestations of general paresis as so diverse in character that we can thus account for the different experiences of various observers.

The Anatomical Changes in the Spinal Cord in an old Case of Infantile Paralysis.—Dr. Joseph Collins, of New York, presented numerous sections of the spinal cord and reported the history of a case of infantile paralysis of long standing.

Progressive Muscular Atrophy.—Dr. G. M. Hammond, of New York. exhibited microscopical specimens and gave the pathological report of two cases of progressive muscular atrophy, and referred to the fact that considerable confusion is occasioned by the misapplication of the term "peroneal type" to a disease totally dissimilar to the one under consideration.

The first patient was a woman, forty-six years of age, without history of gout, rheumatism, or syphilis. In the Fall of 1889 she stumbled over a chair, bruising the right shin slightly, and a few days afterward she was unable to walk as well as formerly. Soon after, there was marked weakness of the flexors of the foot and the extensors of the toes. By October, 1890, there was complete paralysis of the entire right leg. with reaction of degeneration, loss of power and electrical contractility of the anterior tibial muscles of the left leg, and atrophy and loss of power of the thenar and hypothenar muscles of the right hand. Gradually but rapidly the other extremities became involved, and ultimately the abdominal and intercostal muscles were affected. She died suddenly, from either cardiac or respiratory paralysis.

The sections of the cord showed sclerosis of the pyramidal tracts and atrophy of cells in the anterior horns, and degeneration of Gower's column throughout its entire extent. The conclusion to be drawn from the clinico-pathological study of this case would be that the muscles of the hand were supplied by the mesial group, and the muscles of the forearm from the anterior group of cells in the anterior horn.

In the second case, seen in 1882, the disease only affected the muscles of the left thumb. He had the opportunity to watch the case to its termination in 1893. It ran the usual course and was in every way typical. At the time of death all of the muscles, from the level of the armpits upward, except the facial muscles, were atrophied, as well as those of the upper extremities. She became maniacal and finally died from exhaustion. The cord and medulla were examined and the changes were identical with those described in the preceding case. He concluded that these cases demonstrate that progressive muscular atrophy is due to a degeneration of the cells in the anterior gray masses and the antero-lateral white columns. Also that it is superfluous to divide progressive muscular atrophy into different types, because the disease does not invariably begin in the same group of muscles.

The last two papers were discussed together.

Dr. Mills agreed with Dr. Collins's views as to the arrangement of cells presiding over the flexors and extensors. He suggested examination of the nerve-roots at the extreme limit of the lesions.

Dr. Sachs thought such a careful pathological study will ultimately lead to better results than the usual clinical methods. That the Aran-Duchenne type was of spinal origin there could be no doubt, but he was not certain that the case of Dr. Hammond represented the peroneal form of progressive muscular atrophy as described by Charcot, Tooth, Hoffman, and himself. If the case were such, the findings in the spinal cord would have been of great importance. He was not yet certain whether the peroneal form represents a spinal disease or a peripheral affection.

Dr. Putnam had a case in an adult where there was rapid destruction of gray matter throughout the cord. Despite the violence of the process, portions of the anterior and lateral cell groups were preserved.

Dr. Preston inquired as to alterations in the blood vessels. He believed this was the primary alteration in the pathological changes. He also asked if Dr. Collins had examined cross sections of the mixed nerves.

Dr. Gray thought it very difficult to make a positive clinical diagnosis between the central and peripheral portions of the lesion. This was often illustrated in the class of cases reported by Dr. Hammond.

Dr. Collins, in closing the discussion, said that his investigations extended over greater ground than his paper suggested. There was diminution in the size of the vessels, but no evidence of atheroma. The mixed nerves were not examined. He thought the hæmotoxylon stain useless for a study of the cellular structure.

Dr. Hammond concluded that the peroneal type was simply progressive muscular atrophy, beginning in the peroneal muscles.

Optic Neuritis, Blindness, Deafness, and the Kneejerk in Cerebellar Disease.—Dr. F. X. Dercum, of Philadelphia, read a paper with this title. He thought many of the symptoms of cerebellar disease were both inconstant and variable. They are difficult of explanation and frequently impossible to correlate. He desired to call attention more especially to the optic neuritis, the blindness, the deafness, and the modifications of the kneejerks. He related the history of seven cases in which the above symptoms were present.

It is a matter of common experience that very high grades of neuritis may exist without marked impairment of vision. It would seem, therefore, that the added symptom of blindness gives a special significance to the optic neuritis found in these cases. It would appear that for some reason if we have optic neuritis at all in cerebellar disease that it is apt to be intense in character, and further, that it is likely to be associated sooner or later with total blindness. The proximity of the quadrigeminal bodies has naturally suggested itself as in some way explaining this blindness. The ataxia and titubation present in these cases refers us at once to disease of the vermiform process. A consideration of anatomy, as well as the autopsy of Case III., will show that if a growth be situated in the vermiform process, especially anteriorly, and that if this growth continues to enlarge, it will sooner or later press upon the superior cerebellar peduncles and very probably upon the quadrigeminal bodies themselves. When we recall the relation of the fibers of the optic tract to the primary optic centers, we can readily understand how, if pressure or irritation occur at this point, a neuritis should be a consequence. Further, the irritation being direct, we can, perhaps, understand why the neuritis should be of a high grade, and, finally, also why this neuritis should be associated sooner or later with total blindness.

With regard to the deafness which is present in some cases of cerebellar tumor, and which was absolute in Case III., it may perhaps be explained in a similar manner. The studies of Spitzka, Monakow, and others have made it extremely probable that the posterior quadrigeminal bodies stand in the same relation to the auditory fibers as do the anterior to the optic fibers. It would simply be necessary, therefore, to our explanation that the pressure involve these structures in order that deafness should be a symptom.

When we turn our attention to the kneejerk, we meet with a problem of peculiar difficulty. It would seem that one would be justified in accounting for the loss of kneejerk when observed in disease of the cerebellum by the loss of muscle tonus. It is extremely probable that lesions of the cerebellum act as do lesions elsewhere, in one of two ways: *i.e.*, either by destroying tissue, and thus destroying function, or by acting as irritants. It is perhaps in this way that we can account for the fact that in some cases of cerebellar disease the kneejerk is absent, and in others present or exaggerated.

Dr. Gray hoped that Dr. Dercum's explanation of the symptoms would prove true, and asked if the pupillary reflexes had been observed.

Dr. Dercum replied that when the disease had advanced there was loss of reflex action to light.

Dr. Putnam spoke of a case of long-standing optic atrophy and practically no other symptom. Although the optic neuritis persisted for two years, the autopsy showed a cyst and tumor of the cerebellum.

Dr. Preston asked if distinct loss of muscular sense existed in Dercum's case. He had noted this symptom in two patients. In four of his cases the kneejerks were irregular, disappearing and occasionally returning.

Dr. Knapp said that in all of his cases, confirmed by autopsy, there was neuritis or optic atrophy. In one case, where cerebellar tumor was suspected, neuritis had not developed. Blindness had not been so constant. In another case the light reflex was lost when the pupils became dilated. Pressure on the corpora quadrigemina was most likely to produce blindness. He had never noted deafness. As to disease of the middle lobe of the cerebellum being responsible for the ataxic gait, he thought this view untenable.

Dr. Leszynsky, of New York, said he had observed a number of cases; two with autopsy. He thought the concomitant basal meningitis had much to do with the production of the optic neuritis, by extension of the inflammatory process along the nerve-sheath. In many cases the neuritis was a late symptom. Where the neuritis or optic atrophy was accompanied by loss of light perception, the pupillary reflex was always absent.

Dr. Dercum did not believe the neuritis due to pressure, but more dependent on the location of the tumor. In his cases the neuritis was always of high degree. Neuritis, blindness, and deafness indicated pressure on the mid-brain. He would look for cerebellar symptoms where the kneejerk was variable.

A New Method for the Reduction of Dislocation of the Cervical Vertebræ.—Dr. C. L. Walton, of Boston, in reading a paper upon this subject, said that since the publication of sixteen cases previously coming under his notice, he has seen several of similar character, leading him to the belief that this condition is not rare, though frequently overlooked. Reduction by extension usually attempted is unsuccessful. Spontaneous reduction has occurred, showing that direction is more important than force. This fact led him to the discovery of the method theoretically correct, as shown by manipulation of the vertebræ, and by experiments upon the cadaver made by Dr. Richardson, of Boston, and himself. The method has been recently demonstrated in practice by Dr. Beach at the Massachusetts General Hospital with successful result.

In illustration of the method: Suppose the left articular process of one vertebra has slipped forward over that of the vertebra below, and fallen into the depression anterior to the articular process. This bends the head to the left, and turns the face to the right. The reduction is accomplished by extending the head diagonally backward to the right, so as to elevate the articular process, after which rotation to the left replaces the displaced vertebra. The transverse processes on the right act as a fulcrum. The ligaments which hold the vertebra firmly in the false position make no opposition to this manœuvre, which requires no force. In bilateral dislocation the same movements should be made, first on one side, reducing it to unilateral displacement, then on the other.

Dr. Putnam said that cases are more numerous than supposed and cited the instance of a man injured by a fall, who accidentally died through carelessness in his removal to a hospital.

Dr. Sachs asked if this method would be practicable in other than recent cases.

Dr. Walton replied that the operation was performed in one case of about ten days' standing. A case in which bilateral dislocation was produced spontaneously, with perfect recovery, would lead him to recommend the attempt at reduction, even after a number of months, should there be no doubt as to the diagnosis.

SECOND DAY, WEDNESDAY, JULY 26.

Acromegaly, Gigantism, and Facial Hemihypertrophy.—Dr. C. L. Dana, of New York, read a paper with this title, and reported the history of a case of acromegaly with autopsy, also a case of gigantism or somatomegaly with some symptoms of acromegaly. The giant had a unilateral facial hypertrophy.

The first case was that of a full-blooded Bolivian Indian, who was exhibited as a giant. He was thirty years of age; height, 6 feet

7 inches; weight, 300 pounds. He had an enormous development of the malar and frontal bones. His thorax measured fifty inches in circumference. He died suddenly.

On autopsy the brain was found normal, weight fifty-five ounces; the pituitary gland was greatly enlarged, measuring one inch in diameter; thyroid weighed four ounces. The feet and hands had increased in circumferential measurements. The brain presented interesting peculiarities of fissuration.

The second case was a professional giant, 7 feet 5 inches tall, weight 350 pounds, age nineteen years. His muscular development was feeble. He had several symptoms resembling those of acromegaly. His most curious condition was a progressive unilateral facial hypertrophy, due mainly to osseous growth. It suggested an acromegaly attacking only half of one extremity. Only eleven cases of this affection are on record.

Dr. Dana said that acromegaly was sometimes associated with gigantism. He thought that many so-called giants were instances of pathological growth, rather than excessive physiological development. There was much evidence to show that the pituitary gland had some function in these disorders. Among twelve autopsies, this gland was found enlarged in ten.

Dr. Dercum said that acromegaly is not associated with increase in the length of bones, but in their width. He regarded Dr. Dana's case as one of gigantism with acromegaly superadded.

Dr. Gray considered it a question whether acromegaly and gigantism are not identical. We are still in the dark as to the pathology of acromegaly. He thought the cases presented did not warrant Dr. Dana's conclusions.

Dr. Collins looked upon them as two separate diseases. In gigantism the changes are in the cellular structure of the diaphyses and epiphyses, principally the former. In acromegaly the changes are confined to the epiphyses. Probably the disease of the pituitary gland stands in proper relation to acromegaly. Much depends on the method of examination. He had destroyed the gland in animals to see if acromegaly developed; but all died. He thought giants may suffer from acromegaly, and regards it as a degenerative disease.

Dr. Brill, of New York, asked what structures in the brain were usually involved.

Dr. Collins answered the glandular structure of the pre-hypophysis.

Dr. Dercum expressed the view that as the other ductless glands are so often enlarged in acromegaly, to select a single gland as being enlarged seemed precipitate. No doubt the pituitary body may have important functions to subserve.

Dr. Putnam said that investigators have destroyed the gland in animals, producing polyuria, thirst, and debility. In view of the small number of autopsies, we cannot dogmatize. The gland was found normal in three out of nine reported cases.

He had seen temporary improvement in one case under the administration of thyroid extract. We are dealing with abnormities of development, and cannot expect to discover lesions as the cause. In ten autopsies that have been made, the thyroid was wasted in seventy-seven per cent.

Dr. Sachs was of the opinion that both conditions are related. Gigantism is a form of physiological excess, while acromegaly is a distinct morbid condition. He did not attach much importance to the influence of the pituitary body, but thought our knowledge of the exact etiology and pathology is still in abeyance.

Dr. Weber, of New York, had seen two cases. One had symptoms of myxœdema. He was inclined to believe gigantism to be excessive physiological growth.

Dr. Mills had found at autopsy a tumor destroying the pituitary gland, but there was no acromegaly.

Dr. Dana, in closing the discussion, said we do not know the functions of the pituitary gland in its relation to acromegaly, but it is certainly of some importance. He still believes in the clinical relationship between gigantism and acromegaly, but looked upon gigantism as an irregular type. He regarded gigantism as a pathological condition. The thyroid was not enlarged in his case, but the pituitary gland was.

Thyroidectomy in the Treatment of Dr. Graves's Disease.—Dr. J. J. Putnam, of Boston, read a paper on the treatment of Graves's disease by thyroidectomy. After calling attention to the fact that this operation has been done some forty times, mainly by German surgeons, with but two deaths and a very large percentage of cures or improvements, the speaker narrated a case from his own experience. It was that of a young woman suffering from a typical form of Graves's disease, of nine months' standing, and with a rather large goitre. The right lobe and most of the isthmus were removed. During and after the operation the patient's pulse ran up very high, and for several days she lay in an extremely prostrated and apparently critical condition. She then rallied, and now, at the end of six months, her condition is decidedly better than before the operation, though she is far from being cured. The remaining portion of the tumor has not shrunk, and still shows a marked tendency to vascular enlargement. The voice was reduced to a whisper under the immediate influence of the operation, but has now nearly recovered its natural tone. This is not an unusual occurrence.

Dr. Putnam analyzed the reported cases from the following points of view: The immediate and remote effects of the operation (including the mortality rate after operation for goitres in general); the influence of the character of the tumor on the result; the degree and persistence of the improvement in favorable cases; the character of the operation.

Finally, the questions as to the nature of Graves's disease and the relation of the other symptoms to the goitre were discussed. It was pointed out that this relationship was probably based on the fact that the thyroid has important vascular functions.

Strong emotions are capable of causing temporarily most of the symptoms of Graves's disease. The reasonableness of the operation lies in the fact that in Graves's disease certain nervous centers are in a state of extreme irritability. Any means which will cut off a considerable number of excitations from reaching the unstable centers is likely to be beneficial, by securing for them a partial physiological rest. There are various means, such as complete rest, the treatment of the naso-pharynx, etc., which may do this in a measure; but no one means is so effectual as thyroidectomy. The operation is, however, attended by a slight risk of death, and by a greater risk of considerable temporary prostration and laryngeal paresis.

Dr. Dercum had recorded the case of a man with all the symptoms of Graves's disease but the enlarged thyroid.

Dr. Weber had noted recovery in a patient possessing all of the characteristic symptoms under the persistent use of iodide of potash. The dose was gradually increased to three drachms daily.

Dr. E. D. Fisher thought it would hardly seem probable that in Grave's disease the enlarged thyroid can be considered as acting in a mechanical way in producing the symptoms. He had seen many cases in Canada, in whom apparently no symptoms were produced. These persons continued in their regular occupation without discomfort.

Dr. Putnam, in closing, said that a large number of instances of goitre without symptoms had been reported with autopsies. Such children in particular had suffered from debility, and there was dilated right heart. He gave a *résumé* of our present knowledge of Graves's disease, both experimental and clinical. He concluded that we have not sufficient data to establish a physiological basis for the disease.

Tabes and Syphilis.—Dr. B. Sachs, of New York, assumed that recent statistics of Erb and others proved the close relationship between syphilis and tabes. This was established, furthermore, by: 1. The frequent occurrence of general paresis with tabes, and of tabes in the course of general paresis. 2. The occurrence of symptoms in the course of tabes which are often due to syphilis, the ocular palsies, loss of pupillary reflexes, and even the lightning pains. 3. The effect of mercurial and iodide treatment upon many of the symptoms of tabes.

The writer attempted a clinical differentiation of cases of tabes which are due to an active syphilitic process; among these he considers those which exhibit complete loss of reflex contractility of one or both pupils, and ocular palsies. He reported *in extenso* a case of typical tabes, in which, on post-mortem examination, a more recent syphilitic process was superimposed upon an old typical sclerosis. He next referred to the way in which syphilis might cause a spinal sclerosis. He gave reasons for thinking that this was largely due to degeneration brought about by syphilitic disease of the blood-vessels to the spinal cord. Altered states of the blood might be the prime cause of the change in the blood-vessels.

Dr. Preston regarded the syphilitic process as an arterio-sclerosis. Rarely is there hyperplasia of neuroglia without changes in the cells or nerve-fibers. The tabetic process probably begins in the blood-vessels. Traumatism seemed to be a most important etiological factor. He had seen improvement and relief of pain from the use of nitro-glycerine.

Dr. Mills looked upon the active lesions described by Dr. Sachs as probably causative of the sclerosis. Preceding the development of the sclerosis, there may be leptomeningitis and disease of the vessels, which if attacked early might be relieved or removed; but the sclerosis once established, recovery is impossible. Posterior sclerosis often advances at intervals by jumps, and these may be sometimes coincident with or may follow the revival of active syphilitic processes.

Dr. Parsons referred to two cases of syphilis followed by insanity and subsequent development of spinal symptoms.

Dr. Seguin still adheres to the idea that syphilis is only a predisposing cause for the groundwork of tabes. Certain cases occur that are undoubtedly free from any history or evidence of syphilis.

Dr. Knapp mentioned a case of primary syphilis being superadded to tabes of two or three years' standing.

Dr. Spitzka did not doubt that cases of tabes existed without syphilis. He had called the attention of the association to the same pathological condition about eight years ago.

Dr. Walton thought the frequency of trauma in the production of tabes was overestimated. The ascending degeneration resulting from transverse lesions of the cord or from fracture can hardly be regarded as a typical tabes. If we could get at the real facts in all cases, the cases in which syphilis existed without our being able to elicit the history would more than counterbalance those in which we may mistake a chancroid for a sign of syphilitic infection.

Dr. Gray said there is an anatomical explanation for every symptom in tabes. In all cases he had seen he could differentiate between spinal syphilis and tabes.

Dr. Sachs did not claim that spinal syphilis is the same as tabes. We should never omit prescribing the most active anti-syphilitic treatment in the early stages of tabes. He does not believe every case is due to syphilis. In the large majority of cases, syphilis is the prominent factor.

A New Pedodynamometer.—Dr. William C. Krauss, of Buffalo exhibited a new pedodynamometer. The apparatus consisted of a wide heavy belt, its inner surface padded, so that its adjustment around the waist will not be uncomfortable. A heavy webbing is looped through the belt, passing over the shoulders, which helps to retain the belt in position. A common dynamometer is connected with the belt by means of a strong adjustable strap, permitting it to be lengthened or shortened, depending upon the stature of the patient. Connected with the dynamometer is a stirrup, the base of which is padded for receiving the foot. Pressure exerted upon the stirrup will be registered upon the dial of the dynamometer, and the exact strength of the extensors of the leg can thus be ascertained. The apparatus can be applied either in the standing or recumbent posture. The leg should be flexed about 90° at the knee. To tell the strength of the calf muscles, the strap should be lengthened and the foot flexed upon the leg.

Infectious Endocarditis with General Septicœmia, complicated with Multiple Neuritis.—This paper was a joint communication by Drs. James H. Lloyd and David Riesman, of Philadelphia. It was founded on the report of two cases. The first case was in a man who was admitted to hospital with a typhoid type of fever, which had continued for three months and was complicated with multiple neuritis. The diagnosis of typhoid fever was excluded. The neuritis was irregularly distributed. The patient gradually developed an aortic regurgitant murmur with water-hammer pulse. Later a purpuric eruption appeared. A diagnosis was made of infectious endocarditis with secondary septic neuritis. At the post-mortem immense vegetations were found on aortic valves, with infarcts in the spleen and in one kidney. Sections of the spinal cord and nerves were shown, exhibiting slight posterior sclerosis in the cord and extensive inflammation in the nerves. The second case, also in a man, simulated typhoid fever, with yellow-colored stools. At the post-mortem, multiple abscesses in the brain, a large embolus in the left brachial artery, and an infarct in one kidney were found, dependent upon a giant growth of vegetations as large as a pullet's egg, attached to the inner coat of the aorta, overhanging the orifices of the innominate, carotid, and sub-clavicular arteries.

Dr. Dana regarded the septic origin of neuritis of much importance. He cited the case of a young man with symptoms of rheumatism not responding to anti-rheumatic medication. Pyelitis developed in two or three weeks, followed by multiple neuritis affecting all extremities. It is well known that multiple neuritis in this country is most frequently due to alcohol, and not of microbic origin. These forms of neuritis have a different clinical history. Some cases have begun with a history of multiple neuritis, and have then shown symptoms of locomotor ataxia or other spinal-cord affection. There is a class of cases where the neuritis extends and ultimately involves the cord.

Dr. Dercum agreed with Dr. Dana's views, and believed posterior sclerosis occasionally follows multiple neuritis. He asked if septic symptoms preceded the neuritis in Dr. Lloyd's case, with history of alcoholism; to which Dr. Lloyd answered yes.

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SANITARY.

PROGRESS OF THE CHOLERA.

It is difficult to follow the progress of cholera in Europe, because of the policy of concealment maintained so persistently by the different governments. Every now and then we are startled by a report that the disease is epidemic in some unsuspected place, and a little investigation by disinterested foreigners reveals the fact that it has been raging there for weeks. The latest example of this is furnished by a report published in *The Lancet* to the effect that cholera has been epidemic in Marseilles for the last three months. The local officials, it is asserted, have carried their policy of deception to such lengths that even the Government has been led astray in regard to the real state of affairs. The Prefecture now admits that there have been six hundred and one deaths from cholera in Marseilles since the middle of May. On several days twenty deaths were recorded, and on one day two weeks ago the mortality went up to twenty-five. During the last four weeks there have been eight hundred and twenty-six deaths from cholera throughout France.

In Naples a veritable panic prevails, and it is said, though with what truth we do not know, that more than 100,000 residents, or one-fifth of the entire population, have fled from that city since the outbreak of the disease. The official reports greatly understate the facts. The report for one day recently said that there were nineteen new cases and nine deaths, but reliable private advices declare that there were fifty-two new cases and twenty-eight deaths on that day, and forty-nine new cases and twenty-seven deaths on the following. Several cases of cholera are admitted to have occurred in Rome, and it is more than likely that the disease prevails there largely if it is not actually epidemic. This presumption is strengthened by the postponement of the International Medical Congress and by the report that the Italian Government has decided to forbid all pilgrimages to Rome while the disease continues.

The official returns of a late date announce that there were twenty new cases and thirteen deaths in Naples, and three cases and one death in Rome, during the forty-eight hours ending at noon. It is safe to assume that the actual figures are considerably in excess of those given.

Dr. Young, of the Marine Hospital Service, stationed in Naples, reports that the sanitary regulations of the city are good and energetically enforced, and the water-supply is excellent, so that there should be no difficulty in checking an outbreak. The only thing in the way is the ignorance and superstition of the poorer classes. In spite of this, however, he says that the disease is spreading in the suburbs. The Italian authorities have finally consented to the adoption of measures for complete isolation, for five days, of emigrants on board vessels before sailing for the United States. The pope has absolved the inhabitants of Italy from the obligation of fasting as long as the cholera prevails.

The accounts in other places are not reassuring. In Moscow there are between forty and fifty deaths a day from cholera, and the disease prevails to such an extent in South Russia that the Government has issued an ukase closing all schools in that part of the empire. Twenty physicians have been sent to the Caucasus, fourteen to the Division of Kieff, and ten to that of Podolia. The disease is also marching westward from this part of Russia into Roumania and Galicia. Several cases have been reported from Lemberg, the capital of the latter province, and the disease has broken out at Brahilov and at Sulina, in the Pruth delta on the Black Sea, in the Roumanian garrison stationed there. A death from cholera in the east end of Berlin was reported on Sunday last, though the correctness of the diagnosis is doubted by the authorities A bark from Cherbourg for Gravesend has arrived at the latter port with a case of cholera aboard.

In Alessandria, Italy, the cholera is officially declared to be extinct, and it is said that the disease is declining in Malta, the daily number of cases now not exceeding twelve.

The Karamania, an Anchor Line steamer from Naples, arrived in this port on August 3, and was detained at Quarantine, owing to the fact that there had been three deaths on board from diarrhœal trouble, the last two on the morning of the day the vessel arrived. Since the arrival at Quarantine, two new cases of illness have occurred, which bacteriological examination has proved to be cholera.—*Med. Record.*

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MISCELLANEOUS.

Chlorosis.—The causation of chlorosis has been brought nearer elucidation by Dr. Stockman's very interesting investigation on the utility of iron and its mode of action. There are two theories to alcount for chlorosis. One is that ptomaines are formed in the bowels, and act directly on the organic iron of the food in such a way as to prevent its absorption. If this theory be true, in cases of chlorosis no iron can accumulate in the liver, etc., or be found in the urine. A cure would be brought about by giving any form of iron, even organic iron, in sufficiently large quantities to insure the absorption of some. Small doses of organic iron would be useless if given by the mouth (as the ptomaines would act upon it), butought to cure if injected subcutaneously. The other theory postulates that the organic iron of the food is absorbed, but the cause of chlorosis is a derangement of the metabolism of the blood-forming organs preventing proper use being made of the organic iron, which therefore accumulates in the liver or other organs, or is excreted in the urine. If this theory be true, organic iron cannot cure cases of chlorosis, whether given by the mouth or hypodermically. Assuming the correctness of this theory, there are three ways of accounting for the abnormal metabolism:

(1) The disease may be regarded as a neurosis allied to hysteria the splanchnic nerves being affected, and the deranged metabolism is a consequence of the mental state.

(2) Or an absorption of ptomaines occurs from the bowels as a consequence of congestion of the bowel, and this affords an explanation of the occurrence of the disease in girls about the age of puberty, for then pelvic hyperæmia occurs.

Or (3) the theory of a neurosis can be combined with the ptomaine theory by holding that the mental state affects the nutrition of the bowel directly, and permits of toxin absorption. If the somewhat speculative theory that ptomaines are normally absorbed from the bowel and destroyed in the liver be adopted, the entrance of ptomaines into the circulation must be conceived as taking place in the liver.

If chlorosis be regarded as a neurosis and a simple derangement of the metabolism leading to the inability to make use of organic iron, inorganic iron would cure by acting as a nervine tonic, and directly improving metabolism. Why organic iron cannot do so is a matter for investigation. If, on the other hand, ptomaines be looked upon as the cause, then inorganic iron must act either as an antiseptic, or so affect the mucous membrane of the bowel as to prevent absorption of intestinal toxins. The treatment of chlorosis by intestinal antiseptics does not seem to have been tried by Dr. Stockman. It is reasonable to hold that other drugs besides inorganic iron can cure chlorosis, for it is certain that inorganic iron is not required to supply iron to the corpuscles. It acts by making the red cells take up organic iron, and it must do so before it is converted into organic iron in the liver.

The objection to the ptomaine theory is that ptomaine poisoning or auto-infection is now being put forward to account for several diseases. An intestinal toxin cannot produce all sorts of diseases; and if we assume the existence of several toxins and the absorption of only one at a time, the matter becomes very complicated.

HENRY ALSTON, M.B., C.M.,
Trinidad Medical Service.

INTERNATIONAL COURTESIES.—Numerous reports and editorial articles in the leading American journals indicate that Mr. Ernest Hart's reception in the United States has been remarkably cordial and stirring. As the invited guest of the American Medical Association, and as specially delegated by the Council of the British Medical Association to the American Medical Editors' Association, Mr. Ernest Hart was, of course, sure of a hearty and hospitable welcome such as our transatlantic brethren so well know how to give. The welcome he received, however, has gone far beyond the bounds of formal official courtesies. It was a spontaneous expression of esteem for the individual and of the strong feeling of brotherhood which exists between the medical profession in this country and in the Great Republic.

The *Journal of the American Medical Association* had announced Mr. Ernest Hart's approaching visit as an event anticipated with great interest, and many other medical journals had made flattering references to the great part which he has played in the growth of the British Medical Association in his capacity as editor of its *Journal*, for the *British Medical Journal* has long been honored with the esteem and admiring approval, often expressed, of the leading members of the profession of the United States, and has been the theme of appreciative estimates by its medical journalists.

The profession in Chicago where Mrs. Ernest Hart's Donegal Industrial Village has created the liveliest sympathy and interest in the World's Fair, and the municipal officers of the city have vied with each other in extending courtesies to him. It appears also that he was expected by the daily press to express opinions on sanitary matters, especially on the prevention of cholera. Judging from the reports which have appeared, Mr. Ernest Hart, while expressing himself with great reserve and deprecating the tendency to exaggerate the possible dangers, has not hesitated to speak in decided terms as to the dangers which may arise from any neglect to protect the water supplies.

We find that the municipal authorities of Chicago placed at his disposal the city steamboat, for the purpose of inspecting the water intakes from the lake. The expedition was conducted by the superintending medical officer of health, Dr. Reynolds, recently appointed and the party, an account of which is given in the *Chicago Herald* o June 14, numbered among its members the leading physicians o Chicago, Dr. Owens (the chief medical officer of the World's Fair), Dr. Ingalls, Dr. Love (St. Louis), Dr. Finkler (of Bonn), Professor Reimers (of Hamburg), Dr. Ranch (for many years medical officer of the State Board of Illinois), besides Professor Jürgens (of Berlin), Dr. Pott (of Vienna), and others, charged with the duty of official report to their invitation.

The results of Mr. Ernest Hart's observations on this occasion were to be communicated to a meeting of the Chicago Medical Society last week. We gather from the report in the *Chicago Herald*, however, that he was disposed to attribute the prevalence of typhoid fever last season to the use of the polluted water from the inshore intake, now happily closed, and that he warmly approved of the substitution of the new four-mile intake. The report in the *Chicago Herald*, which bears obvious indications of having been altered and dressed up *more Americano*, passes over the "little defects" with a very light hand, but makes Mr. Ernest Hart's compliments to that magnificent body of water, Lake Michigan, which has been so thoughtlessly fouled, and his observations that Chicago has "at its doors" the purest water supply in the world, the justification of such sensational headlines as "The Best Fluid on Earth," "Ernest Hart concludes that the Supply from Lake Michigan is the Purest in the World." These expressions are not entirely borne out by the text of Mr. Ernest Hart's statement, which only indicates that Lake Michigan is capable of supplying an unsurpassed body of pure water when the "little defects" which he has to point out are remedied.

The ostrich policy of hiding up the textual warnings by flashy headlines of an opposite significance is not very wise or dignified. To those accustomed to read between the lines the meaning of such devices is plain enough; but it is not everyone who will read between the lines. The *Chicago Herald* is one of the ablest and most influential journals in America, and it hardly does well to lull its fellow-citizens into a false security. It should rather stimulate them to accelerate necessary reforms.

Mr. Ernest Hart's address on Medical Journalism, extracts from which we publish elsewhere, was a more purely literary effort than that on cholera. It contains an account, which cannot but be found highly interesting, of thirty years' devotion to the development and consolidation of medical journalism as a power capable of being used as a weapon for the promotion of great medical and public interests. The address ranged over a wide field, touching the mainsprings of the "higher journalism," as contrasted with the perverted and, it may be hoped, ephemeral fashions of what is sometimes called the "new journalism."

On the whole, the results of the visit have their obvious international use in promoting international comity, the exchange of views and of greetings. Utterances so candid and fearless may be expected to provoke some wholesome criticism, tempering the chorus, thus far universal, of courteous praise and unqualified acquiescence; but that also is one of the objects and advantages of free speech and the interchange of ideas across the ocean. The universally gracious and complimentary reception tendered to the editor of the *British Medical Journal*, and the admiration everywhere felt throughout the great American republic for the aims, methods, and achievements of the British Medical Association, reviewed and studied from afar and therefore dispassionately and impartially, have found a voice on the occasion of Mr. Hart's visit. Its echoes will not soon die away, but will remain an enduring remembrance, and will form an agreeable and useful episode in the medical history of our time and of the English-speaking race.—*British Medical Journal.*

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MEDICAL NEWS AND NOTES.

The American Medical Association.—Dr. Culbertson, who has for two years edited *The Journal* of the American Medical Association, and has done it most ably and successfully, has resigned, and returns to Cincinnati to resume connection with the *Lancet-Clinic.* In his valedictory editorial some rather startling facts are told regarding the condition of the American Medical Association. We can present them best in his own words:

"The American Medical Association reached its highest membership in 1888, at Cincinnati. That city is located near the center of population of the United States, and the meeting was boomed through the local journal. Since that date there has been an annual decline of members and of revenue from their dues. The delinquents have been quite regularly, every year, a little more than forty per cent. of the members to whom *The Journal* is regularly mailed, which indicates faulty collections. While this may be the fault of no one in particular, it is no doubt mainly caused by the distant separation of the treasurer from *The Journal* office.

A Congress of Nonogenarians at Paris.—The editorial staff of *La Science médicale* has undertaken to convene, for scientific purposes, a considerable number of aged persons. No distinction as to nationality will be made in regard to old people who are provided with documents proving that they have passed the age of ninety years. Expenses of traveling and lodging at good hotels are to be defrayed by the medical committee in charge of the affair, and the well-being of the delegates will be cared for during their stay at the congress. Three gold medals will be awarded, one to the oldest, one to the strongest and one to the most intellectual. Although there are supposed to be not fewer than two hundred centenarians in France, the presence of a few only of them may be expected; by far the greatest number of them reside in the departments that skirt the Pyrenees. It is supposed that the congress will have for its president Dr. De Boissy, who practiced medicine at Havre for seventy years. He was born in

April, 1793. Dr. De Boissy is still vigorous, and not long since read a scientific paper before a public meeting. The convention will be called to order on July 25 at the Palais des Arts libéraux.—*New York Medical Journal.*

"In December, 1891, when the publication of the list of members was made, we were gratified at an apparent increase in members, which was, however, more than offset by the immediate receipt from the treasurer of a list of almost five hundred names to be dropped as delinquents. The past year has witnessed an increase followed by a larger decrease."

As a matter of fact, the total membership of the association has steadily decreased for the last five years, until it is now fifty per cent. less than it was in 1888.

This condition of things is serious, and shows that there is some inherent defect in the organization and conduct of the association. Dr. Culbertson's remedy is to abolish the delegate system, and reorganize on a plan like that of the National Legislature. The scheme seems most impracticable, but it appears that something must be done.

The new editor, Dr. John B. Hamilton, is energetic, and may prove wise enough to devise a way of stopping the ebbing tide.—*Record.*

TREATMENT OF APPENDICITIS.—Dr. N. Senn concludes an interesting paper on this subject as follows:

1. All cases of catarrhal and ulcerative appendicitis should be treated by laparotomy and excision of the appendix as soon as the lesion can be recognized.

2 Excision of the appendix in cases of simple, uncomplicated appendicitis is one of the easiest and safest of all intra-abdominal operations.

3. Excision of the appendix in cases of appendicitis before perforation has occurred is both a curative and prophylactic measure.

4. The most constant and reliable symptoms indicating the existence of appendicitis are recurring pains and circumscribed tenderness in the region of the appendix.

5. All operations should be done through a straight incision, parallel to and directly over the cœcum.

6. The stump, after excision of the appendix, should be carefully disinfected, iodoformized, and covered with peritoneum by suturing the serous surface of the cœcum on each side over it with a number of Lembert stitches.

7. The abdominal incision should be closed by two rows of su-

tures, the first embracing the peritoneum, and the second the remaining structures of the margins of the wound.

8. Drainage in such cases is unnecessary, and should be dispensed with.

Nitro-Glycerin for Vomiting.—A contributor to the *British Medical Journal* recommends nitro-glycerin as the most positive remedy for controlling vomiting he has ever employed. He has found it will control all forms of vomiting, whether in adult or infant, acute or chronic. He has found it of great service in controlling the vomiting of gastric catarrh, and in alcoholism it acted almost as a specific. It also proved useful in controlling the vomiting of pregnancy.

Dr. Ed. H. McBride, of Springfield, Mo., has been elected President of the South-west Missouri Medical Association at the April meeting. It is the second largest medical body in the State.

How to Disinfect After a Scarlatina Visit.—Put your hand in your pockets and walk round the square, and don't tell anybody. This prescription is from a high authority.

NATURAL AND ARTIFICIAL DRYNESS OF CHAMPAGNE.

Natural dryness and the smallest percentage of alcohol constitute the purest and most wholesome champagne, as compared with artificial and spirituous dryness, which admits of a higher percentage of sugar in the wine, while giving a dryer but false taste, as is the case with several of the so-called "brut" wines. By chemical analysis of Prof. R. Ogden Doremus, G. H. Mumm & Co.'s Extra Dry contains, in a marked degree, less alcohol than other prominent brands, and he recommends it, not only for its purity, but as the most wholesome champagne.

Bonfort's Circular, the authorized organ of the wine trade, of January 10, 1893, says: "Custom House statistics for 1892 show G. H. Mumm & Co.'s Extra Dry far ahead of all its competitors, its importations aggregating 75,880 cases, being more than one-fifth of all combined, and over 9,000 cases more than any other brand. While words tell, statistics prove, and the best evidence for unexcelled quality, purity, natural dryness and wholesomeness that can be produced, is given by the success of this famous wine."

G. H. Mumm & Co.'s Extra Dry of the excellent vintage of 1889 is attracting great attention for its natural dryness, purity and quality.

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ORIGINAL ARTICLES.

ARTICLE I.

A FEW NOTES ON TARSAL AMPUTATIONS—TRAUMATIC AND ARTIFICIAL AMPUTATIONS—SUBSTITUTES OR PROTHETICAL APPLIANCES FOR LOST PARTS.[1]

By THOMAS H. MANLEY, A.M., M.D., Visiting Surgeon to Harlem Hospital, New York.

The facilities, the appliances and the aids which the inventions of man and modern science have made available for operating surgeons, have so radically revolutionized the whole domain of surgery that it may now be affirmed, without fear of contradiction, that many of the dogmas promulgated and beyond cavil, as late even as the middle of this century in which we live, have become obsolete and antiquated. The almost lightning rate of American inventions has been a tremendous leveler of traditional doctrines of the near past. American invention has led the whole world, and in every place in which civilization exists, however remote, its impetus is felt. For these reasons, the unprejudiced of every clime and every race must concede to the land of Columbus the first and highest place among those nations which have made the world better, softened the hardships of the past, and spread broadcast those blessings which spring from a free, enlightened, liberty-loving and God-fearing people.

Without the interposition of any miracles the lame and limbless have been made to walk ; the blind see ; the toothless, masticate ; the strangling, breathe ; and crooked, distorted limbs have been made straight. But the crowning glory of all is ours—of transporting the agonizing sufferer, during the torture of surgical procedure, into the dreamland of repose and happiness.

Who that has traveled abroad but has observed that our surgical dressings, for profusion and quality, are unrivaled. Our modern operating theater, dietary, sanitary arrangements and nursing are difficult to excel.

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[1] Read at meeting of American Medical Association, at Milwaukee, June 9, 1893, Section of General Surgery.

But to the subject proper: Let us see at this, the great centennial of America's history, where we are, on the question of the most appropriate treatment of those pathological and traumatic disorganizations of the foot, which involve an amputation in its continuity.

Of recent years, since the art of prothesis has reached such an advanced degree of perfection, it would seem from the startling assertions which we hear, that in the future, if we would treat those mangled or pathological conditions which extend into the tarsus with the best advantage to the patient, the entire foot should be sacrificed, with the ankle-joint included; in other words, that we must wholly disregard all former rules with reference to preserving all vitalized tissues, when such a lesion exists as heretofore called for a tarsal or medio-tarsal severance.

Let us first hear what a well-known manufacturer of artificial limbs has to say on this subject. Mr. Charles Truax, of Chicago, at the meeting of the American Association of Railway Surgeons held at Buffalo, May 1, 1891, in presenting an essay on this subject said: "In amputations of the anterior part of the foot, it is just as certain, if you remove any of the bones necessary for the maintenance of the plantar arch or sever the plantar fascia, that you will destroy the usefulness of this arch, as it is true that the leaving out of a single stone from the span of an arch will permit it to fall; and whether you perform a Lisfranc's, Hey's, Forbes', Chopart's, the subastragaloid or an osteoplastic operation, you leave your patient a foot that is of *no value*, except to carry weight. In such cases the utility of the foot is either greatly impaired or wholly destroyed, and the portion allowed to remain becomes a useless appendage; worse than useless, as it is in the way of providing for something better. . . . . *Do not amputate between the metatarsal bones and the junction of the lower and middle thirds of the tibia. At all other parts save all you can; and you will, in every case, have done the best for your patients.*"

It may, perhaps, be regarded as a matter of questionable propriety to introduce the views of an artificial limb maker into a discussion on a surgical subject; but after a moment's consideration, we can see that this is a fallacy, for it can be readily shown that it is only when the prothetician and the surgeon coöperate that the best interests of the mutilated patient are served. It is a well-known fact that in the most of our populous cities to-day many dentists do nothing but extract teeth, while there are others who occupy themselves exclusively in fitting and repairing. Each excels in his own branch. As a rule, when the surgeon amputates a limb and the patient leaves the hospital he seldom sees any more of him, as he has finished his part and turns him over to the prothetician.

Now, generally, when he leaves the surgeon who has sacrificed the limb he feels that the latter is quite through with him, and turns to the artificial limb maker as his natural friend, to provide him a substitute for what is gone. To the latter he now goes also for *treatment* of his artificial limb, as this, in time, shows the need of readjustment, removal or repair. Hence, while the surgeon has the man under his observation for weeks only, the latter seldom loses sight of him during his entire life. Accordingly, the opinions, judgment and experience of those who have given years to the craft of prothesis should not be unheeded, but be duly approved, appreciated, criticised or condemned, as occasion requires.

It would seem little less than a barbarous mutilation in diseases of the teeth, when several sound members of the group survive, to wrench them out of their sockets and replace the entire arch by an artificial set ; but experience and observation have alike convinced the surgeon-dentist and patient that, in order to secure the best æsthetic effect with the most comfortable and powerful set of grinders, this sacrifice of healthy structures is often a necessity. Hence, in this instance, theory has to give way to practical demands, and a new art has demanded new conditions. Without doubt, the same principle will apply, to a certain extent, to the adaptation of artificial substitutes, in those cases of disorganization of structure which are limited to the joints of the foot and other parts of the body.

It may be prudent, before we enter on the question as to what division of the parts shall be made in the foot, or partial foot amputation of the same, to take a momentary glance at the anatomical architecture of this organ, its physiological functions, and the almost total want of analogy between it and the hand.

Roughly speaking, the foot serves but two purposes : 1, as a support to the body ; and 2, a means of locomotion for the same.

In the standing attitude it may be said that the entire weight of the body is transmitted, through the tarso-tibial articulation, to the surface of the heel. The plantar-arch, the anterior, tarsal, meta-tarsal and phalangeal structures, while the body is in repose in the upright position, serve no purpose except to, aid in a slight degree, the balancing of the body and preservation of the equipoise ; for it is only in locomotion, as walking, running, jumping and similar movements that these are called into active exercise.

Those parts of the plantar surface which come in direct contact with the earth are thickly clothed with an investment which has immense elastic, resiliant properties. These consist of a cutaneous covering of great density and thickness, subcutaneous fibro-adipose tissue, the plantar fascia and cellular tissues. Now, it is absurd to talk of substituting any sort of a stump covering which can, in any manner whatever, compare with this for its resisting power against pressure or friction. On this point[1] an author imparts a statement which, without doubt, will strike many as astonishing news. He says: "Before entering into discussion on the principles most important to be observed in the construction of a good stump, I desire to call attention to the erroneous impression regarding the wearing of an artificial limb that exists in the minds of many surgeons. This opinion is to the effect that in most cases following amputations in the lower extremity, the weight of the patient, or at least a great portion of it, is borne on the stump. It is true that this follows some operations, but it is the exception and not the rule. When a section has been made through a bone no weight can be borne on the end of the stump. Disarticulation, or an osteoplastic operation alone will admit of pressure; . . . . There are to-day thousands of patients wearing legs designed by intelligent inventors, where not even an ounce of weight is borne by the end of the stump."

This maker was perhaps a little extravagant when he said that there was not *an ounce* borne by the ends of these stumps; but if he intended to convey the impression that they sustained no other weight than was necessary to secure an adjustment without wriggling, or a swaying motion in the sheath of the artificial limb, he was entirely correct, as I am able to testify from my own experience in not an inconsiderable number of cases.

How, then, in the face of such an allegation, which is well supported, one can, by any species of philosophical reasoning, advise the deliberate sacrifice of the ankle and entire foot, when the latter is diseased or damaged, in any of its areas posterior to the metatarsus, is indeed inconceivable. This is retrogression, and brings us back to the time which antedates anæsthetics and aseptic surgery; when the operator, in order to operate with the greatest celerity and with the least infliction of anguish to his patient, as a common rule always severed the entire foot above the ankle joint for any condition rendering an amputation of a part of it necessary. On this subject, Mr. Thomas Bryant, in his unrivaled textbook, speaks in no doubtful terms. He says: "In no part of the body has improvement in modern surgery shown to better advantage than in the foot; for in none has so much been done in the way of conservatism. Where formerly amputation of the whole foot was common, we now have Hey's, Chopart's, Symes', Perigoff's, the subastragaloid, and Hancock's amputations; all founded on the well established position that governs, *or ought to govern*, in all amputations; viz.: that no more of the body ought to be removed than the necessities of the individual case require; or other words, upon the principle of the least sacrifice of the parts. To amputate a foot, in the present age when anything else will suffice, is regarded as almost criminal, and surgeons generally accept Hancock's well-put question in his valuable lectures: . . . . "Can anything be more unphilosophical than to advocate the sacrifice of any bone, or part of the foot, for no other reason than that a particular operation should be performed? We should perform our operation as close to the damaged structures, as possible and preserve as much of the foot as we possibly can with safety to our patient."—(*Bryant's Surgery*, p. 922, Ed. viii.)

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[1] Amputations in the Light of Prothetical Science. By Mr. Chas. Truax.

Ashhurst says: "Chopart's amputation was particularly studied by the late Mr. Hancock, who found that out of 152 cases but 11 died; a mortality of 7.2 per cent., while no less than 120 out of the 126, who recovered had useful limbs." The results in subastragaloid amputations, says Ashhurst, are more satisfactory. He cites Stephen Smith, of New York, as saying that the Syms stump is better adapted to an artificial limb than any other. Syme denounced Perigoff's amputation; but nevertheless, I have seen most admirable stumps after it, and entertain no doubt of its value (Ashhurst's Encyl., Vol. ii., p. 617). There is nothing in the latest American work, the "System of Surgery, by American Authors" on the controversial side of the question; nor is there a line in either of the two great French works, separately edited by Réclus, and by Péan, which have recently issued from the press, on this subject.

Erichsen, when the foot is so crushed that one cannot with accuracy recognize the living from the dead parts, envelops the entire foot in a carbolic acid solution—1 to 20, and defers amputation until the exact limit of injury can be defined (Erichsen's Surg., Ed. viii., p. 140). Speaking of Symes' amputation, he says: "That by it, the patient is spared an amputation of the leg; that it bears an exceedingly useful stump, which constitutes an excellent and useful basis of support." The result, in Chopart's amputation, he says, are entirely favorable to the patient, as by the aid of a purposely constructed apparatus he is able to walk, run, and even dance with little, if any, appearance of lameness. He admits that the heel is drawn up in some cases, but quotes from Verneuil, who alleges that this complication is almost never seen, except in cases of amputation for disease, and where it existed before operation. He never saw it in a primary amputation. Mansell Moulin (*Syst. Surg.*, p. 1380) says: "The stump left after a Perigoff amputation in many cases is exceedingly good; but sometimes the stump will tilt forward against the ground. This can be obviated by dividing the tendo-achillis and suturing the tendons in the periosteum."

The late Dr. A. B. Watson was not an advocate of Chopart's amputation. In his valuable work on "Amputations and the Principles on which Artificial Limbs should be Constructed and Worn,' he sets forth, in his usual clear and energetic style, the reasons why he took this position. He is the only author whom I could find hostile to the medio-tarsal amputation.

In the hand, our aim in amputation or treatment of a limited disorganization is to be guided mainly by two principles: first, to spare what we can, for prehensile purposes, and secondly, for its æsthetic effects. The foot not serving the same physiological function of the hand, and being always covered, the homely, awkward shape of the stump we care nothing about, as the strength and utility of the limb alone concern us.

But, since I have given this subject serious thought and careful study, the question has often occurred to me, "why are these medio-tarsal, or tarsal amputations required at all?"

In an active traumatic surgical practice of more than ten years, and of a mixed pathological and traumatic surgical practice of the same period, I have never seen a single case which, to my mind, was appropriate to a medio-tarsal amputation. I have never performed one. But there are two principles which, in my practice, have been rigidly adhered to in traumatic disorganization of the upper and lower extremities alike—or in any part of them, viz.: first, never to do an immediate primary amputation of any kind; and, secondly, to spare every particle of healthy bone, wherever situate, that we will have ample integument to cover.

The medio-tarsal or the tarso-metatarsal in the subastragaloid amputations all leave a very large stump surface, which necessitates a very extensive area of integumental flap to close in. At the tarso-metatarsal, and in the medio-tarsal junctions, we must have the entire plantar surface up to the webbing of the toes for a flap; else our amputation fails. My experience has been that, in those traumatisms in which so much of the plantar surface is intact that it preserves ts vitality to the metatarso-phalangeal articulations, the metatarsal bones above, though extensively fractured, as a rule, may be preserved; hence, the body of the foot spared.

It is true that in not a few cases of fractures of the foot we are obliged to make an extensive sacrifice of healthy bone and tissue, when a slough of the skin has laid bare, over a large area, the underlying parts.

Again, I may repeat that the fundamental principle on which my line of treatment, in all mangling lesions of the foot and other parts, is based, has been to *spare everything* which will survive with comfort to the injured. This principle rests on the humane assumption that we have no right, in order to carry out a theory, to sacrifice a particle of living tissue. If for cosmetic or purposes of increased utility the patient, of his own will, desires a secondary operation after the primary lesion has healed, it may at any time be performed. There are other cogent reasons which support this line of action. Among the most important comes the medico-legal aspect of the case.

In the event of a civil suit for damages after certain amputations on the foot the question might, with good reason, arise : "Would not the patient have had a much more comfortable and useful stump and stronger limb, if no artificial amputation of any kind had been performed?"

My own experience in a large number of these cases would incline me to answer this question in the affirmative. For it is a custom with me, which is never deviated from, not to remove any tissues in mangling lesions of the foot, which have not been totally destroyed, by the "traumatic amputation." If, as the mortified parts are detached, the demarcating line is formed and the soft parts retract, parts of living bone project into the hiatus, they should be resected far enough back to permit the integument or cicatrix to fall easily over, and inclose them.

A SHORT SYNOPSIS OF TWELVE CASES OF TRAUMATIC AMPUTATIONS ON THE FOOT, WITH ONE ARTIFICIAL AMPUTATION.

With two exceptions these cases all occurred within the past three years. Nine were hospital cases, and three in private practice. All were males.

Case 1. Patient 32 years old, middle size, in good health. An athlete and prize fighter. Crushed, as he was trying to mount the front platform of a street car.

Immediately after the accident he was taken up by an ambulance and brought to one of our principal hospitals. Here, when the foot was examined, he was informed that it must come off above the ankle joint. Took fright at this statement. Sent for a carriage and was brought to a hotel, to which I was called, about two hours after the accident.

On examination of foot it was found that the car wheel had passed obliquely over the outer aspect of the foot, crushing in and extensively shattering all the metatarsal bones, except those of the great toe, and laying widely open the soft, overlying parts.

The foot was thoroughly cleansed, all the bleeding points secured, but nothing cut away at this time. Limb placed in sterilized, copious dressings, bandaged lightly and placed in an elevated position.

There had not been much local pain, little temperature, or constitutional disturbance; the dressings were not disturbed for four days. At this time, everything was removed and parts exposed. All the toes dead except the great one. Great swelling in the toes; and tissues below the swelling black, bloated and bedewed by a free ichorous discharge. There was no foulness to the odor of the discharges. The body of the foot, on the dorsum and plantar surfaces, seemed healthy.

Dressings now changed every day. The line of demarcation in a week well outlined. The necrotic tissues by the tenth day were becoming rapidly detached. On this date those parts which merely hung by tendons were cut away. In two weeks all the slough had come away, and it was found that the damage to the foot was limited to the metatarsal bones; all except the first being destroyed to a point close to their articulations. The difficulty which now confronted us was to fill in the breach occasioned by the loss of substance. A mediotarsal amputation would not do here; hence, it must be an amputation above the ankle joint as had been suggested by the hospital surgeons. But the great toe served no useful purpose where it was; and accordingly I adopted that invaluable procedure of M. Guermonpréz, of Lille, of *disossment*, as he designates it; the toe was split along its inner aspect, over its entire length, the nail removed with its matrix, and all the phalanges and its metacarpal bone. Now this large vascular flap was turned into the hiatus, sutured and firmly bandaged. It filled the gap perfectly. Dressings were removed in four days. Union entire. After this dressing there was little else to do. He made a rapid recovery; and now, with the aid of an artificial apparatus, he walks with scarcely a limp. This case and several others of a similar description were exhibited before the surgical section of the New York Academy of Medicine in the Winter of 1892.

Case 2. A young German editor, while dismounting from a train while in motion on a dark night, mistook his footing and had both feet crushed by the wheels. With one the flange of the wheel cut it in two, crossing over it in a sharp diagonal direction, crushing everything through from the astragalo-scaphoid-articulation and the cuboid bones. This was cut through as sharply as with an ax ; the tendons flattened out and torn, yet holding on to the mangled parts anteriorly. This was the left leg. With the right, the damage was not so extensive. Here, the wheel crossed obliquely, clipping away three of the toes and crushing through their metacarpus.

The wounds in this man's case were treated similarly to the preceding. After eleven days the damaged structures were pretty well separated from the healthy. With the lesser injured limb the jutting ends of the uncovered metatarsal bones were cut away with the rougeuer, sufficiently far back to permit ample covering as the wound cicatrized. About one-third of the surface of the foot was lost on this side. At this time on the left side we had a large, open, healthy granular surface of very large diameter, with nothing to cover it. The heel and ankle joint were perfectly healthy. This man was but 32 years old, in good general health.

Now the question arose as to what was to be done with his right foot, or what was remaining of it?

After a consultation it was decided that, as the exposed surface was so large, grafting would be impracticable, and hence, that a Syme amputation would be the operation which would provide the most useful stump for support and locomotion.

This operation was performed, but, on the third day, as it was found that the flap sloughed, an amputation of the leg was performed at the junction of the lower with the middle third. From this he made a good recovery. Two months after, prothetic appliances were adjusted, and he commenced to walk.

Now this was a typical case in which to test the comparative value of a partial foot amputation on one side and its complete sacrifice on the other, at the point in the leg indicated. What has been the result? Simply that there is no comparison in the relative value of the limbs.

It was months before an artificial limb could be borne on the left side. The stump was sensitive, requiring soothing applications and special treatment, and rest at intervals for months ; though it had a loose, simple integumental covering. This reminds me that the current teaching that an integumental covering makes the best stumps is a fallacy, for I have seen too many cases in which scar tissue, when clothing the end of the bone, gave the least annoyance and the most comfort. This gentleman with his right foot, which had suffered but a partial amputation, and was well fitted with an artificial contrivance, had every comfort.

My only regrets are that I did not make a further effort to spare the other ankle joint, for I now feel that it is only after every other expedient is exhausted we are justified in sweeping away this powerful articulation.

Case 3. Patient a young man of 20, in good health; three months previously, in Savannah, Ga., had his right foot cut off through the anterior and middle thirds of the plantar arch by an accident in a saw-mill. An amputation of the entire limb was advised. He would not consent to it, and came on to New York. In the first institution that he entered here, the same thing was recommended as in the South. But he refused again, when, as he had no means, he was advised to enter the almshouse, as he was a cripple. He went to an uncle in this city who brought him to the Harlem Hospital. On entrance he was hobbling about on crutches. The whole end of his foot was an open ulcer, very painful and freely discharging a sero-purulent material. The edges of the integument were turned in, but there was not enough tissue to cover in the now necrosed ends of the metatarsal bones.

Patient was prepared for operation. Limb scrubbed, disinfected and swathed in sterilized gauze dressing. He was now etherized. All the diseased protruding portions of bone were removed with gouge and rougeuer, until a healthy, hard, vascular surface was reached. Surface ring of the overlying, torpid integuments cut away. A flap of tissue on opposite thigh partially detached, foot brought up and fixed there by gypsum dressings, with the autoplastic graft imbedded in the gap. The whole of the graft did not take, but enough contracted adhesion to materially aid in closing in the opening.

Six weeks after this operation patient left the hospital with a useful and serviceable stump of a foot. As he had not walked on it for so long the sole was quite tender; but with the aid of a stick he got along very well. I saw him six months later, when he was working in a livery stable. He now walked well without crutch or cane. As yet, is not able to purchase artificial support. In this case, after final bone resection and union of the integuments, nothing of the osseous parts remained in the foot except the tarsal bones. There was never any tendency to retraction of the heel.

Case 4. This patient, a young man 26 years old, was injured by having his right foot removed by a trolley car wheel. Those electrical cars, because of their increased capacity and carrying part of their motor power within them, are very heavy.

All the toes of foot were crushed into a pulp. The distal ends of all the metatarsal bones ground off. It was impossible to define the vital line at time of entrance; hence, we pursued our usual course in this case of traumatic amputation as we do in all others of any description, *i.e.*, we effectually subdued all hemorrhage, dressed, adjusted the limb and waited. After ten days line of demarcation formed, when a large charred, dry plaque of dead integument was thrown off the plantar surface of the foot. Now protruding ends of metatarsal bones were removed with the rougeuer and the usual dressings were applied.

One month later, breach entirely healed, and patient discharged. This man I saw recently. He walks with scarcely a limp and pursues his ordinary occupation of a cigar box maker.

Case 5. This patient was a boy, 6 years of age, who had sustained an intracondyloid fracture of the left femur. The popliteal artery was destroyed, and before collateral circulation had become well established all the toes of the foot below, and the soft parts, as far back as the tarso-metatarsal articulations, gangrenous.

The sore became infected and the family physician advised an amputation above the knee joint; but he has steadily progressed toward recovery; the foot and leg have been preserved, and give promise of doing good service in the future.

Case 6. These two cases may be considered together. Both were injured by horse railroad accidents. Each had sustained damage to one foot in about the same situation, viz., at the tarso-metatarsal junction. In both, the same tentative course was pursued, with the result that each—one ten years after injury, and one one year, walks without lameness.

Case 7. Two years ago a carpenter of middle age came under my care, who had his right foot smashed by a falling piece of lumber. A typical traumatic amputation had been effected through the posterior third of all the metatarsal bones; but, there was a singular escape of the sole of the foot, so that when the slough was thrown off and the ends of the bones resected, it was utilized for a flap to close in the parts. Since the wound healed, by the aid of an apparatus, he has made his living at his trade; some stiffness in his gait, but he has a useful supportable stump.

Case 8. This case came under my observation during a bodily examination. It is incorporated here because it belongs to the family under consideration, though it was not treated by me.

Patient was a salesman three years before, in Ireland; had his left foot crushed by a railroad accident. Sir Wm. Stokes, of Dublin, performed a Chopart amputation on the foot. The result was ideal. He walked without a limp; had a smooth, soft, comfortable stump; not the slightest retraction of the heel, and wore no apparatus.

Case 9. Patient, a man of 64, diabetic; had incipient senile gangrene of toes of the left foot; in great pain. He had been in hospital in New York, under surgical treatment; but the persistence of the gylcosuria stayed the hand of the operator. Went home to Brooklyn, N. Y., at which place, shortly after leaving the hospital, I performed a medio-tarsal amputation on diseased foot. Gangrene set in promptly after operation, when I performed a second amputation at the junction of the lower and middle thirds of the leg. This wound healed promptly, and an artificial limb was subsequently worn when he returned to his trade of stone cutter. One year after, had gangrene in opposite foot, from which he succumbed.

Case 10. Patient, a young man, had his foot crushed in an elevator. The foot was tampered with by improper treatment until a general cellulitis and an osteomyelitis occupied a considerable part of it.

When called in to see the case, an immediate amputation was advised, as gangrenous processes were rapidly extending into the ankle. A species of modified Chopart was performed, which had the desired effect in arresting pathological processes.

Wound healed nicely. By the aid of an apparatus he now walks without a limp, and congratulates himself that his whole foot was not amputated.

Case 11. Patient a hostler. Had his foot injured by being crushed under a horse's hoof. Developed suppurative osteomyelitis and sent to hospital. An amputation of the entire foot was recommended. He would not consent to this and was sent home. Here I saw him.

With him all the toes had to be removed, three of the inner metatarsal bones, and about one-half of the shafts of the two outer.

Plenty of healthy soft parts to cover in the openings. Parts readily healed. The result has been entirely satisfactory. He never could afford an artificial apparatus, and thus far, now nearly two years, has managed to follow his usual occupation without any serious drawback. He is but slightly lame, being obliged to stand a considerable part of his time, the resulting stump is severely tested.

Case 12. This I record as one of Chopart's amputations which went badly. The patient, a hearty, middle-aged man, had his left foot crushed by being struck by a missile of rock from a blast. The attending surgeon performed a medio-tarsal amputation. The wound healed by first intention in about three weeks.

He came to me six months after the original amputation, telling me that his limb was useless, as it could bear no weight whatever. After consultation I amputated what remained of the foot and the leg in its lower third. He now wears an artificial limb with comfort.

Case 13. This patient was not operated on by me, but his case is of interest as showing what can be accomplished with a Chopart amputation with a properly adjusted apparatus. He was 24 years old. Two years before had a Chopart amputation performed for an injury to the foot. He came to me for treatment of a varicocele, when I discovered that he had an artificial apparatus on his leg, and he showed me the stump after completion. He informed me that unless he informed people they never would suspect anything wrong with the limb at all. He said he went to several balls during the past Winter and went through all the dances without the slighest trouble.

He was a drummer for a jeweler's house and almost constantly on his feet. Without the artificial elastic adjustment which he wore, he said walking was very painful and difficult.

To my mind, one good reason for making amputations low down near the ankle joint in healthy young subjects is, that, should a tender, sensitive or painful stump result, we can go up with a second amputation, and still have an ample length of leg kept for the comfortable adjustment of an artificial limb. When the amputation is at the junction of the lower and middle thirds, a second amputation is much more dangerous to life, and leaves so short a stump that it may interfere with effective prothesis. How many of those mid-tibial amputations do we see in which the stump can tolerate no pressure of any kind, and locomotion is possible only by bending the knee and strapping a sort of crutch-shaped apparatus to it.

It may be affirmed, then, with every argument that sound logic can advance, that in lesions of the foot, traumatic or pathological, the principle should be enforced of sparing any portion which will preserve its vitality. Should it be discovered later that, as an aid to prothesis, another section will render locomotion more effective and comfortable it may be made, but not without an understanding with the patient that this latter expedient may not improve his condition.

ARTICLE II.

"UTERINE PERISTALSIS. THE CHIEF AGENCY BY WHICH THE SPERMATOZOA ARE BROUGHT INTO CONTACT WITH THE GERM CELL."

By J. G. Carpenter, M.D., Stanford, Ky., Permanent Member American Medical Association, Aug. 3, 1893.

In Gaillard's Medical Journal, July, 1893, is a most interesting and entertaining article titled "Uterine Peristalsis. The Chief Agency by which the Spermatozoa are Brought into Contact with the Germ Cell," by H. McS. Gamble, M.D., Moorefield, West Va. In the year 1880 or 1881 the writer witnessed the same uterine peristalsis in a negro woman. This observation was reported in a paper titled the "Proper Use and Abuse of Sexual Intercourse," to the Central Kentucky Medical Society, about 1886.

This negress had been in a semi-comatose state for days, refusing to take medicine or food for about one week, and by her friends was supposed to be dying or in a dying condition. The writer made a visit at their request and realized that hysteria was a prominent factor in the case, and in looking for the cause made a digital and conjoined manipulation of the sexual organs and pelvis. The cervix being rather large, a specular examination was made. As soon as it was introduced, opened, the woman elevated her hips and slipped further from the side of bed, gave a loud groan, and with all her reserved nerve force brought into play made a most interesting panoramic display of her sexual organs. The old negro nurse exclaimed "Good God, doctor, she is dying!" The color of the vagina, cervix and os became a dark purple, the vagina would alternately elongate, efface the rugæ, then contract, shorten, and throw up the rugæ like the waves of the sea impatiently awaiting a mariner's return. As the vagina elongated, the uterus (the cervical portion) appeared longer and the os smaller, and the uterus rode high, no doubt out of and above the pelvis; then would the cervix shorten, become longer, the os more patulous, and an alternate contraction and dilation of the os of from ½ to 1 inch, and of the cervix, would take place as the womb, descending to the ostium vagina even, came so far out as to fill the mouth of Nott's or Cuseds trivalve speculum; then the os and cervix would contract and elongate, and the womb again take its flight to the realms above.

This rythmical ascent and descent of uterus; contraction and dilatation of cervix and os; and elongation and shortening of womb and vagina continued, it seemed, several minutes, making ten or twenty repetitions. A glairy discharge came from the womb, with a discharge from the orifices of the vulvo vaginal ducts. The womb finally tamed down, became quiet and restful, and assumed its wonted color. During the orgasm the patient groaned and sighed, the diaphragm and levator ani worked in unison with the womb, while the latter was stampeded and riotous, seemingly pursuing its mad career. From these observations, the writer believes the nymphæ, clitoris, vagina, womb, tubes and ovaries became highly turgid, congested and heated, during the orgasm; that there was for the time a relaxation or paresis of the constrictors of the vasomotor vessels, and the womb, by expansion of os and shortening and dilatation of cervix, as it descends, dipped up the semen and spermatozoa, and, with the assistance of the calumnar ciliated epithelium, and by closure or contraction of os and cervix the womb thus ascended, the spermatozoa were taken to the fundus and tubes and ovaries. The peristaltic action or impetus was then taken up and continued by the tubes, the jumbriated extremity grasped the ovary like a lover and held with strong grip until the ovaries reciprocated by discharge of the ovules into the tubes and nature was requited at the conclusion of the orgasm, and fructification and conception took place in the tube. The jumbrated end of tube in those cases retracts and contracts and in healthy tubes deposits the conception in the fundus of womb. But if the tube is diseased, deprived of its epithelium, shortened or constricted in its lumen, or its function impaired by adhesions around it, tubal or ovarian pregnancy takes place, and is followed in a few weeks or months by a ruptured tube and death, if the expert physician or surgeon has not the case, thus confirming the experiences of Dr. Founad, Abbott 35, that in women dying from symptoms of colic, suddenly, without a diagnosis or operation, a post-mortem will revealing ectopic pregnancy. Dr. H. McS. Gamble concludes his article, "That which we have seen with our eyes, which we have looked upon, declare we unto you," towhich the writer says "Amen"; and "From the mouths of two witnesses shall every word be established." From Dr. Gamble's description I believe he saw the same phenomena, though in a different person, and regret we did not see the same thing, the same time and in the same patient. This article may meet with readers who are "doubting Thomases;" nevertheless, truth is truth, upon it we stand.

ORIGINAL FRENCH TRANSLATIONS.

POST-PARTUM PUERPERAL AUTO-INFECTION.

Translated for GAILLARD'S MEDICAL JOURNAL by H. McS. GAMBLE, M.D., Moorefield, W. Va.

(*Continued from August number.*)

CASE III.—*Résumé : 35 years old, neuropathic ; typhoid fever about* 15 *years of age.—Attacks of hysteria at* 22 *years, chlorosis, anœmia. Fetid leucorrhœa after the menses ; pains in walking, standing erect.—Labor at normal term, spontaneous ; grave complications of purulent metritis and of salpingitis.—Slow but gradual amelioration, and persistence of the signs of chronic salpingitis two years after the confinement.*

Mme. M., 36 years old, menstruated about the age of 13 years, was attacked with typhoid fever at the age of 15 years, the disease continuing for two months. Toward the 20th year she was subject for two years to very serious paroxysms of hysteria. She was treated for this affection and for an intense chloro-anæmia.

Married at 32 years, she soon began to complain of fetid leucorrhœa after her menses, which were, however, regular as to their duration and as to the time of their appearance. She experienced, likewise, pains in the lower part of the abdomen, about the seat of the ovary in the renal region. In the course of her pregnancy, which supervened quickly, she had some pains and leucorrhœal discharges characterized by a disagreeable odor. The pregnancy evolved, nevertheless, in the most natural manner. An antiseptic treatment was prescribed comprising frequent internal injections with naphthalated solution.

The 7th of May, 1890, I was called to see Mme. M. a few moments after the commencement of the pains. The period of expulsion lasted about four hours. The bag of waters broke at the vulva. Touching was practiced two or three times by the midwife and once by myself.

All the antiseptic precautions in use were taken during the labor. Hangings, carpets and useless articles of furniture were removed in advance. For a very long time no labor had taken place in the house.

Delivery of secundines was prompt, normal and complete. In consequence of lacerations and vulvar abrasions, in order the better to assure asepsy, I proceeded to apply sutures. At the first stitch an attack of nervousness necessitated replacing the patient upon her bed. The vulva was washed and dressed anew.

The next day, 24 hours after the labor, the general condition was good, but the pulse a little rapid and the cheeks red, which caused me to feel some apprehension. The vaginal surfaces presented no suspicious appearance ; the abdomen and the uterus were free from pain vaginal injection and vulvar dressing.

In the night the patient slept badly, and awoke with the head feeling heavy In the evening, 48 hours after the labor, slight rigors supervened ; purulent lochia escaped from the vagina. The vaginal injections containing corrosive sublimate were multiplied.

Upon the third day, the purulent lochiæ flow in streams ; they inundate the dressings several times a day.

The uterus is painful, especially on the right side. The abdomen is a little distended. Touch and palpation combined reveal a manifest tension that thrusts and fixes the uterus on the left side. The right cul-de-sac is thus enlarged and has a doughy feel.

From this moment, puerperal infection is manifest ; the general state grows worse.

Two abundant intra uterine injections are given every day ; an antiseptic crayon is placed in the uterus ; iodoformed gauze fills the vagina and protects the vulvar abrasions, at the fourchette, near the meatus urinarius.

The following day and for several days the situation becomes graver. The abdomen remains moderately distended, but it is very painful upon the sides of the uterus and under the false ribs. Palpation and touch combined disclose a salpingian tumor, juxta-uterine, the size of the fist, before the evacuation of its contents. This sack is completely emptied ; still, the flow continues and is very profuse.

The general condition is bad, the patient has fever, slight chills that last through a portion of the night, followed by cold sweats. The temperature oscillates between 39° and 40°, rising some evenings even to 41°.

The patient refuses all food and has a fetid diarrhœa. She will take only a little milk, beef juice, or biscuits steeped in a generous wine.

About a week after the début of the symptoms, she complained of precordial pains, of palpitation. A prolonged sound at the apex during the first period causes some apprehension of endocarditis. According to the patient, her physicians had previously heard this same murmur.

Mme. M. complained likewise of pains in the shoulders, of cramps in the legs ; none of these painful phenomena can be attributed to a local disease.

A methodical treatment was instituted from the beginning.

1st. Against suppuration: Warm intra-uterine and vaginal injections and crayons of salol introduced into the uterine cavity; dressings of the vagina and of the vulva with iodoformed gauze; ice upon the abdomen and vesications.

2d. Against general infection: Tonic regime, extract of cinchona mixture, sulphate of quinine, antipyrine, cachets of naphthol.

Blisters should be applied over the ovarian region on the right side and over the precordial region also. These flying vesications remain only about ten hours in place. Below the vesicatories, while still unremoved, are developed outbreaks of erysipelas. The erysipelatous eruption attains in two or three days to the size of the hand, and then disappears. Twice a day, a large portion of the cutaneous surface around the erysipelas is soaped, brushed and washed with an alcoholic solution of salol. The vesicatories are applied in order to combat the pains and the doughy swelling of the right ovarian region.

Eighteen to twenty days after the labor a consultation is held. The consultants are unanimous in recognizing a double salpingo-ovaritis with purulent collection especially marked upon the right side, which had supervened in a chloro-anaemic and nervous patient. The complications are referred to as an affection anterior to the labor. The prognosis is reserved because of the nature of the symptoms, of their acuteness, and especially because of the bad general state of the patient which existed anteriorly to the pregnancy.

All active treatment is rejected by the patient; uterine clearance, and with still more reason a more radical operation, such as vaginal drainage of the suppurating sack, is discarded.

The consultants, Doctors Saint-Ange, Jeannel, Tapie, Albert and Sechevron, prescribe warm vaginal injections, of about ten minutes duration, repeated twice a day, as well as warm clysters, and a tonic treatment with a graduated alimentation.

Convalescence is of long duration; the discharge ceases little by little. Discharges of pus supervene, which are well marked. These discharges are preceded by colic, abdominal pains, and an acceleration of the pulse with elevation of the temperature. The abdominal thickening, which is very perceptible below the femoral arch in the lower basin of the pelvis and the juxta-uterine pouch, increase in volume. All these symptoms are attenuated or disappear after the paroxysms.

About six weeks after confinement the situation is saved; but the general and local conditions remain unfavorable.

During the entire Summer, Mme. M. is compelled to contend against painful attacks of salpingitis, which confine her to quietude from fifteen days to three weeks.

In 1891 she was likewise obliged to maintain a state of rest upon several occasions in order to ward off fresh attacks. In September, in consequence of a fall by reason of a misstep, she was seized with violent pains in the side and with pains over the region of the kidneys. These pains are coincident with returns of the swelling on the right side.

At the present time the local condition is very much improved; the uterus is supple, free, and normal in its functions, with the exception of some leucorrhœa. On the right side alone, tumefaction, a doughy thickening, and sometimes a circumscribed mass is felt, which is painful, and can only be the tube and the ovary.

The general state is better although the chloro-anæmia is all the time pronounced. The patient cannot endure fatigue, an erect posture, or a prolonged walk, but at length she recovered sufficiently to resume in great part her usual habits.

September, 1892, season at Salies-de-Béarn: Manifest improvement.

Symptoms; Course.—The clinical evolution is difficult to describe because of the rarity of cases reported and of their varieties. Our excellent teacher, Dr. Budèa, has given a sketch of the symptoms according to a few personal cases presented to the Obstetrical and Gynecological Society of Paris, following the reading of an interesting paper by Dr. Blanc, of Lyon.

The symptoms appear, in general, rapidly, a few hours, or one or two days after the labor. Verjus, quoted by Blanc, has seen them supervene on the 15th day. Slight rigors, an acceleration of the pulse, headache, a few abdominal pains in the iliac fossæ open the scene. Fever is declared; the temperature rises to 39° or 40°.

The uterus is reduced in proportion to the date of the confinement. Lateral pressure is badly borne, still more on one side than on the other. The vagina is hot, especially in the culs-de-sac. In one cul-de-sac there is soon felt, sometimes from the commencement, a diffuse mass, a poorly defined, slightly accentuated bogginess.

In some cases there exists a manifest purulent collection that has developed in a few hours or that preëxisted before the labor. Some gynecologists have been able, in fact, during the pregnancy, or during the labor, to recognize the presence of collections sufficiently abundant to produce a projection into the culs-de-sac and to put them upon the stretch.

The day after the début of the symptoms, the tongue is loaded, the appetite gone; the head is rarely heavy, all trace of the storm of the day before has disappeared. In the evening, the fever again rises, the symptoms return with more violence, and, a characteristic fact, the patient is inundated with pus, analogous to that of a phlegmonous collection, perhaps more serous. It seems that a discharge has occurred before even any large collection could have been recognized the preceding day. This suppuration can hardly be explained except by the evacuation of anterior purulent sacks or by the disaggregation of the acute purulence of a profoundly altered mucous membrane. It is natural, and conforms to modern ideas to introduce the hypothesis of a momentary exaltation of the virulence of an attenuated virus, an exaltation *en rapport* with the modifications of the medium produced by the traumatism of labor.

When suppuration is established the situation is comparable to that of a patient attacked with acute-metritis, with peri-uterine phlegmonous complications, or pelvic suppurations. The suppuration is sufficiently abundant to require several dressings a day. The uterus is tumefied, painful, fixed and framed in by an inflammatory tumor. Palpation and touch combined, if they are tolerated, enable one to define a pouch in which it becomes possible to detect fluctuation. After pressure and manipulation, which should be practiced gently, the flow, which is more or less abundant, escapes from the uterus; veritable gushes of pus may thus be pressed out.

The annexal lesion is so much the more perceptible in the proportion it is found adherent to the uterus, itself large and hard, showing a limited degree of involution. Nevertheless, in our case, uterine involution took place quite rapidly. Toward the end of the first fortnight the uterus was but little more than triple the normal size.

The general condition keeps pace with the local in its vicissitudes. If the discharge is free, if the uterine cervix allows the pus to escape, the general symptoms are not very grave. The febrile reaction is moderate; the rigors are attended only by a superficial sensation of cold. This sensation, described as shuddering, is a sequel to the period of reaction marked by a dry heat, and followed by some sweating. The attack passes off in a few hours.

The temperature oscillates between 38.5° and 39.5° unless an arrest occurs in the free discharge of the pus or a complication such as an extension of the lesions toward the peritoneum. Then supervene a dry heat, pronounced chills, and a temperature of 40°. In my experience these febrile exacerbations announced upon several occasions either an accumulation of pus in the salpingian poach, or the evolution of erysipelas developed beneath blisters that had been applied several hours before.

Renal and cardiac complications—endocarditis, pericarditis—pleural lesions, phlegmasia alba dolens, are to be feared.

The terminations of the disease are as problematic as those of a nutritis complicated with salpingitis. The patient may succumb to pyaemia, to erysipelas, to peritonitis, etc., etc. Recovery is established little by little, thanks to an energetic treatment. But serious lesions of the uterus, or of the tubes may be appeased, become latent, ready to surprise the patient and to expose her to all the dangers of a uterine or pelvic suppuration.

Diagnosis.—The gravity of all these lesions and the responsibility of the accoucheur gives great importance to the diagnosis at the very commencement of certain puerperal diseases. It is well known, in fact, that in certain jurisdictions, the accoucheurs and the midwives are responsible to a certain extent for the life of their lying-in patients. There is in this a medico-legal question to be kept in mind.

The diagnosis of the uterine, or of a peri-uterine origin of puerperal infection, can be established upon a sure foundation, only upon the essential condition that the most rigid rules of antisepsy have been observed about the parturient.

Except in case of death followed promptly by an autopsy, by establishment of the existence of a pouch, of a purulent fistule before the labor, it is impossible to refer the acute symptoms to old lesions, particularly if the accoucheur has not used antiseptic or aseptic measures about the patient.

If antisepsy has been practiced about the *accouchée intus et extra*, if the accoucheur and the assistants and the medium surrounding the accouchee offer guarantees of asepsy, the diagnosis of the origin may then be considered.

Antecedents—unfortunate labors, uterine diseases have a relative value. The verification of the presence of sacks, of purulent fistules or simply of peri-uterine doughiness, of fixation of the cervix, of abundant leucorrhœal discharges which are purulent during pregnancy constitutes a commencement of proof of an auto-infection of internal origin, above all in the absence of vulvo-vaginal lesions. The prompt appearance of the symptoms, the rapid formation of a purulent collection, and the abundance of the suppuration increase the probabilities of internal origin. Certainty could only be established in the earlier hours, if an autopsy revealed the presence of salpingitis, of old inflammatory foci, and upon the condition, we repeat it, of the most absolute guaranty of having avoided the slightest error of antisepsy.

This certainty can seldom be obtained, for it is very difficult to avoid overlooking something in the practice of antisepsy ; likewise in a medico-legal investigation, it would be necessary to take great account of the anterior uterine and pelvic diseases and of the ground upon which the lesions have been developed.

In this diagnosis the auto-infection from internal cause supervening after normal delivery is almost solely given consideration. We ass over the question of the primary cause of abortion and of premature labor dependent upon uterine or peri-uterine lesions, as well as the causes of the fatal peritonitis supervening during pregnancy, and in consequence of the perforation of a purulent sack or of the generalization of the localized lesions.

Treatment.—To avoid pregnancy in a diseased uterus surrounded by diseased tissues, and still better, to treat and cure these uteri, would be the prophylactic treatment of the diseases passed in review. This is the ideal treatment; the one that eludes us the more generally.

The practical treatment consists in the treatment of every genital affection, in the redoubling of antiseptic measures before, during and after labor, in the case of a patient whose genital organs are already unsound.

Upon the slightest indication, one must be ready to intervene actively. It is necessary to wash out, to drain the uterus freely; it would be better to scrape the mucous membrane, to perform a toilette en-règle. Every purulent sack projecting toward the vagina ought to be opened and drained according to the lyonnaise method, if one wishes to avoid all destructive action. It is not creditable to stand by and watch the development of grave diseases with the hands fortified only with a vaginal douche; an energetic treatment must be instituted.

Certainly some lesions will retrocede easily, thanks to this therapeusis. It is very probable that the surgeon will thus escape the worst vaginal hysterectomy. This operation cannot be put aside from prejudice. It is capable of working miracles in the most desperate cases.

If hysterectomy, which is preferable to ovarian castration, is decided upon in these extreme cases, it should not, however, be performed too hastily. It must be remembered that patients have been able to preserve both uterus and ovaries from surgical furor and have been indebted to a wise and conservative surgical practice for new maternities.

Conclusions.—The following conclusions will close this discussion:

There are some cases of puerperal auto-infection that are *inevitable*, even with the aid of antisepsy.

Auto-infection is either of *external* or *internal* origin.

Auto-infection of internal origin may be *genital* or *extragenital*, of local or general character.

It may determine complications: abortion, infectious diseases, before the normal term of pregnancy, or even after labor, *post-partum* auto-infection.

This latter variety, the special subject of this paper, is frequently of external but more rarely of internal origin. The infectious germs may be inclosed within the uterus, origin *intra-uterine* or from without but in the connective tissues of the uterus—origin *extra-uterine.*

Infection of uterine and that of extra-uterine origin merit a different clinical description. The former is more benign, less serious in its immediate consequences than the second. It assumes readily the aspects of a benign affection, one easy to combat, while the second marks more profound and more extensive lesions. Infection of extra-uterine origin, especially that proceeding from the annexes, may compromise the life of the patient.

Auto-infection of *uterine* origin may be observed in any uterus attacked with metritis, even slight or with cervical metritis.

Case I.—The symptoms are those of an acute suppurative metritis. Its peculiar characteristic is the rapidity of the invasion and of the suppuration, one or two days after the accouchement.

The cure is easy and prompt, upon condition a rational treatment being pursued.

The complications to be dreaded are those of every acute metritis, that is to say, the extension of the inflammation to the annexes and to the peritoneum.

General *extra-uterine* auto-infection may be of *intra-uterine* origin; vulvo-vaginal canal, or *juxta-uterine,* annexes, peritoneum.

The first may be ranked among the external causes. Its frequency is extreme. For a long time antiseptic measures have been directed against it.

Infection proceeding from the annexes—juxta-uterine or rather peri-uterine—is undeniable.

It is rare, especially if we consider the sterility to which patients are often condemned.

This misfortune does not weigh to the same degree upon women suffering with metritis.

Patients attacked with metritis, complicated with salpingitis, with adhesions may become pregnant. But they are liable to miscarriages from the fact of the adhesions of the metritis (Case II.) or of very grave complications, such as peritonitis, caused by inflammatory extension, or by perforation. The pregnancy and the labors at term may be normal, but the accouchée is exposed to infectious diseases from the fact of the presence around the uterus of the remains of inflammations of purulent collections.

The pathogeny of the diseases is different. The purulent collection empties itself through the uterus and infects it, or even the attenuated germs, owing to the exaltation of their virulence from the presence of the obstetrical traumatism, are multiplied, extend into the neighboring tissues or are generally diffused and infect the organism. Puerperal infection is the result in either case. Very frequently the patients attacked are predisposed by their anterior condition to become a *pus sponge* (Pajot) (*une éponge à pus*). The ground is propitious to infection (Case III.).

The clinical tableau is that of a grave puerperal fever, remarkable for its pelvic complications. The purulent matter collects about the uterus and the lochiae are composed of veritable pus, very abundant.

The life of the patient is quickly imperiled, and the disease then undergoes all the chances of the termination of pelvic suppurations.

The diagnosis derived from an investigation into the origin of an internal auto-infection is so much the more interesting in that to this investigation attaches a medico-legal question: the responsibility of the accoucheur in a given case.

The certain evidence of internal origin may be acquired with difficulty; however, elements of great probability may be easily gathered together and these elements may either exculpate or incriminate the accoucheur.

The most rational treatment consists in douches, drainage of the uterine cavity, and, if necessary, curetting of the uterus and evacuation and drainage through the vagina of purulent sacks.

Vaginal hysterectomy will be reserved for exceptional cases.

Conclusion.

SELECTIONS.

THE INJURIES RECEIVED DURING CHILD-BIRTH AND THEIR TREATMENT.

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I am well aware that this is a subject the literature of which is ample, both in periodicals and text-books. A number of recent experiences, however, especially in consultation practice, has impressed me that a review of the subject may not be either untimely or inappropriate. Our knowledge concerning these injuries is now so complete, and the ability to recognize and treat them successfully so much more general than it was a generation ago, that a summarizing of the facts, which will be the object of this paper, seems justifiable. For this diffusion of knowledge and skill the world is greatly indebted to gynæcology and gynæcological teachers, and a moderate degree of pride in the development of this specialty is pardonable in all those who have had a share in bringing it about. There are no specialties which have done more to mitigate human suffering and discomfort, in the period of time which was mentioned, than has been done by it.

Diagnosis.—Preliminary to any consideration of the injuries which are possible during parturition must be the important subject of diagnosis both as to the parturient and the fœtus. Unless the condition of the patient, including that of her tissues, the relations of the birth-canal to the fœtus, and the presence or absence of obstructions in the canal be known in advance, the process of parturition, so far as the influence of the accoucheur is concerned in the case, becomes a matter of chance, but with these facts in his possession it is often possible for him to ward off disaster, or by timely interference to obviate serious consequences to accidents which could not be averted. The obstetrician should therefore first acquaint himself with the general condition of his patient, supposing that she is really in labor, ascertaining if possible the existence of any lesion of vital organs, and then he should determine as accurately as possible the conditions relating to the advancing fœtus. An error in determining the position or presentation of the fœtus may be fatal to it, and a source of much injury to the mother. On the other hand, mistakes are sometimes unavoidable, even by those of the highest skill and the largest experience. This is a matter of personal knowledge, not of mere opinion ; no man is infallible. The study of pelvimetry, which is now beginning to receive in our American schools something like its proper attention, will do much toward lessening errors of diagnosis in child-birth. It is chiefly valuable, because it will establish in the mind certain fundamental principles, which when once fixed will prove of the greatest value in the determination of abnormal conditions of the birth-canal.

Duration of Labor.—The bearing of the duration of labor upon the question of possible injuries is a very decided one, and suggests a division into

1. Precipitate labors.
2. Protracted labors.

A precipitate labor is, of course, one in which all three stages rapidly merge into each other. The expulsive force is violent, and the fœtus bursts, instead of crawling or gliding through the birth-canal, like a shot out of a gun. Such labors occur in women with large pelves, in whom the bony resistance is slight, in young women with superabundant vitality, sometimes in primiparæ, oftener in multiparæ. They may occur as the result of fright or other emotion, and sometimes the cause is inexplicable. I never saw one which did not produce injuries to the tissues, and I know of no way in which they can be prevented or anticipated. A protracted labor, on the other hand, is one in which the expulsive powers are defective, or the tissues, whether muscular or bony, unduly resistant. Nature flags in her efforts to expel the fœtus, or the obstructions which she meets are of such a character, that unless art comes to the rescue, the result will be disastrous to the mother or the child or both. By far the greater number of accidents resulting from child-birth are to be considered under this category. It is in this class of cases that the obstetrical treatment of the present day is vastly superior to that of the past. It is in this class of cases, too, that the management by midwives has no place. A labor which proceeds normally can be managed as well by a midwife, if she is clean and intelligent, as by a physician. There is no need of interference, nature is competent to do all that is necessary. But if these fortunate conditions do not exist, it is criminal in a midwife to refrain from getting skilled assistance, if it is to be had, and our laws relating to such matters are strangely defective, and urgently demand correction. A protracted labor may be anticipated in

1. Primiparæ of thirty years of age and upward.
2. Multiparæ in whom a long interval has elapsed since the previous labor.
3. Women with weak or flabby muscular systems.
4. Women with rigid tissues which have resulted from disease or accident.
5. Women with deformed pelvis.
6. Cases in which the presentation is faulty.
7. Cases in which a mechanical obstruction, usually in the form of a new growth, checks the advance of the fœtus.

(1) In primiparæ of thirty years of age and upward, the pelvis may be of ample capacity, and the general condition of the patient good, but the muscles concerned in parturition do not relax readily, and the older the patient the less ready the relaxation. This is the observed fact; I need not enter into its explanation. The first stage of labor in such cases is therefore unduly long, the muscular *tonus* is exhausted, and when the fœtus passes out the tissues are more or less torn, and other serious results may follow. Of course this rule is not

universal. I have delivered a primipara of upward of forty years of age instrumentally, with no perceptible injury to the tissues, and most obstetricians of a number of years of experience have had similar cases.

(2) A similar explanation seems rational for those injuries which occur in women with whom a period of several years intervenes between successive labors. As every one knows, it does not follow that a labor in such cases will be normal and without accident merely because a previous one has been. The rigid condition of the tissues and their unsatisfactory relaxation may be regarded as the chief cause of trouble, if trouble occurs.

(3) In women with weak or flabby muscular systems the element of imperfect dilatation and resisting power is also a great source of trouble. In a young and healthy woman the muscular and other soft tissues are resilient, and the degree of stretching which they will bear before tearing is often astonishing; but in a debilitated woman with tissues which are weak and poorly nourished, dilatation and extension are accomplished slowly and imperfectly, and they often tear like wet paper, no preventive treatment being possible. The same is true of fat and flabby women, and if to this unfortunate condition is added that of a weak and badly acting heart, as is so often the case, the situation for all concerned will be truly a grave one.

(4) The tissues involved in the parturient process are often rigid as the result of disease. The vaginal portion of the cervix may be indurated from a previous labor, the vagina a rigid tube of scar tissue, or there may be infiltration with malignant disease, any of which conditions will suffice to render labor protracted and perilous. Fortunately this class of cases is getting smaller every year, thanks to greater intelligence in obstetrics and gynæcology. Few physicians, and fewer midwives than formerly, now allow a woman to remain in labor for an indefinite period, with its horrible sequels of sloughing, fistulæ and cicatricial tissues, and much oftener than in the past is a malignant disease of the pregnant uterus detected and operated upon in its early stages. These are encouraging facts and lead one to hope even better things for the future.

(5) The subject of deformed pelvis as a cause of protracted labor and consequent injury is so broad that I can only touch its borders in the limited space at my command. Therein lies the value of a careful preliminary education in pelvimetry. I do not see the necessity of taking careful measurements of the pelvic diameters in labor cases which are proceeding normally. In some cases, in private practice, of course, such a routine measure would be quite impracticable and

impolitic for obvious reasons, but in all cases in which the process of parturition is in any way abnormal, whether from tardy progress of the stage of dilatation, or the discovery by the examining finger of obstruction of whatever character in the birth-canal, common prudence would indicate an investigation in regard to the conformation of the pelvis. I know of no simpler method of obtaining such information as is most essential in such cases than that which was suggested by J. Whitridge Williams, namely the determination of the *conjugata vera* from the actual measurement of the *conjugata diagonalis*. The latter is the distance from the promontory of the sacrum to the sub-pubic ligament, and may be measured by introducing the index and middle fingers into the vagina between those two points. Deducting from this measurement ¾ or ½ of an inch, according to the height and inclination of the symphysis, will give the approximate length of the *conjugata vera*. If the latter is less than 3¼ inches the presence of a contracted pelvis is evident, which of course demands further investigation and such treatment as the extent and variety of the deformity indicates. The determination of the *conjugata vera* gives the clew and suggestion for further investigation.

(6) That faulty presentations may cause protracted labor and consequent injury to the tissues scarcely needs discussion. With reference to the injuries which may be caused, we may consider the order of significance of faulty presentations to be in a very general way.

1. Occipito-posterior.
2. Transverse.
3. Breech.

An occipito-posterior presentation which is not convertible into an occipito-anterior, or which, from long continued impaction or other cause, does not admit of version is as disagreeable a complication and as certain to cause damage to the mother as any possible combination or irregularity. It is fraught with danger to the life of the child, indeed many lives are sacrificed from its occurrence, and it is the complication above all others in which an error of diagnosis as to presentation is liable to occur. I have known of such errors having been made by men of the most extensive experience and the highest skill and obstetric knowledge. Injury from transverse presentations is liable to occur both from the prolonged pressure which may have existed before relief was obtainable, and from the violence which is often inevitable in the disengagement of the fœtus. And yet, even in this most unfavorable complication I can recall a case in which, after hours of manipulation by a midwife and several physicians, the resulting damage to the mother was surprisingly trivial. But such a happy result is seldom obtained.

Injury from breech presentations is, in my experience, not apt to be great unless the after-coming head is unusually large, or the soft parts unduly rigid.

(7) Injury from the presence of a mechanical obstruction in the birth-canal is often serious. Such an obstruction may consist in a bony outgrowth in the pelvis, an ovarian tumor projecting low into the pelvis, or a fibroid tumor of the uterus. Formerly the result in such cases was almost inevitably death to both mother and child. Now the situation is entirely changed. An ovarian tumor, if discovered prior to parturition, may be removed, or may be tapped if not discovered until labor has supervened. Fibroid tumors have been removed before or even during labor, while the operations of Cæsarean section and symphysiotomy offer the most hopeful conditions for both mother and child in cases which would be hopeless by any other means of treatment. Thus we see the marvelous resources of obstetric art, and, even in cases in which its aid has not been invoked in time to prevent injury, how comparatively infrequent are those which are insusceptible of subsequent relief and repair.

Necessarily, the forms of injury which occur during parturition are those which are inflicted upon the organs and tissues with which the fœtus comes in contact in its outward passage, that is :

1. The uterus.
2. The vagina and its contiguous organs.
3. The pelvic articulations.

(1) Injuries to the uterus:—In precipitate labors these injuries are almost invariably limited to the cervix, and especially to its vaginal portion. As dilatation is rapid and often incomplete, a rent of this portion of the uterus is almost certain to occur, and it is more or less extensive according to the resiliency of the tissues and the size and firmness of the body which is thrust through and out of it. In protracted labor there may be rupture of either the corpus or cervix. The accident, when involving the corpus, usually begins, according to Bandl, in the lower segment, which is the thinnest of all portions of the corpus, after dilatation has taken place. The rent may extend upward toward the fundus, downward toward the vagina, or laterally toward the ligaments. The cause of rupture when the fœtus is still *in utero* must always be essentially a disproportion between the force exerted by or through the fœtus and the resistance offered by the uterus. More specifically, the causes which have been most frequently reported are faulty presentations, especially transverse ones, in which

the presenting part presses against the lower uterine segment with undue force and duration, new growths in the uterine wall, which cause it to dilate unequally, and render it unequally resistant at different points, and rigidity of tissue resulting from previous disease or injury.

Injuries of the vaginal portion of the cervix in protracted labors are extremely frequent, and of all degrees of significance and extent. Emmet has called attention to the importance and significance of injuries of this class and the necessity of instrumental interference before pressure upon the uterus and vagina has destroyed their vitality. Notwithstanding the great change in practice which has resulted from such teaching, there are still many illustrations, not only of tears and lacerations which are unavoidable, but of such as should be prevented, with the subsequent history of sloughing and cicatrization. Injuries to the uterus which have recently assumed great importance are those which are inflicted intentionally by the obstetric surgeon, including the Cæsarean section and the incision of the portio vaginalis cervicis (Dührssen). A weakening of the uterus, as well as of the abdominal wall, has been reported in a number of cases of the former, while the latter leaves several lines of scar tissue which may cause subsequent trouble.

2. Injuries to the vagina and contiguous organs:—The vagina may be torn in any portion, and in any direction, by the progress of the fœtus alone, or by attempts at delivery on the part of the midwife or accoucheur. Injuries at its upper portion are rare, and occur, as a rule, only in those difficult and severe cases in which the head is long impacted in the pelvis, or in which clumsy or violent attempts at delivery are made with the hand, the forceps, or instruments for the destruction of fœtal life. Injuries to the anterior vaginal wall are almost *prima facie* evidence of prolonged or protracted labor, the presenting part having been long detained in the pelvis, and sloughing of the tissues, usually associated with injury to the bladder, more or less cicatrization resulting. Lesions of the posterior vaginal wall are much more common than those of the anterior, and present all grades of intensity, from the slight rupture of skin and mucous membrane at the fourchette to the extensive tears which divide the sphincter ani and more or less seriously injure the rectum. Emmet and others have called attention to those injuries which are not always apparent to the eye, the mucous membrane of the floor of the vagina being intact, while the underlying connective tissue and muscle may be greatly torn and detached. In dispensary practice I see many cases in which such injuries have been entirely overlooked and they have the greatest possible bearing upon

the stability of the pelvic floor and the comfort of the individual. Lesions of the vulva and vestibule, especially in primiparæ, are, I believe, frequently overlooked, except in the cases in which troublesome hemorrhage is associated with them. They should be carefully sought and promptly repaired, for failure to attend to them is followed by very troublesome cicatrization and contraction.

(3) Injuries to the pelvic articulations are practically limited to the cases in which there is deformity of the pelvis. They may occur at the symphysis pubis or the sacro-iliac synchondrosis, and especially in prolonged labors in which there has been firm impaction of the presenting part in the pelvis.

Treatment.—The treatment of the injuries which have been enumerated constitutes one of the greatest triumphs of obstetrical and gynæcological art. A generation ago, few obstetricians considered it necessary as routine practice to inspect the birth-canal after the completion of labor, to see what damage had been sustained and what repairs were required. Only after the severest lesions, such as rupture of the uterus or complete rupture of the vaginal floor extending into the rectum, was interference considered essential. Now, an obstetrician who neglects this precaution (routine inspection) is considered, at least by those whose opinion is most entitled to consideration, unwarrantably neglectful of the interests of his patient, and should the subsequent history be an unfavorable one the story of his neglect comes back to plague him.

Treatment with reference to the injuries which are under consideration may be:

1. Preventive.
2. Reparative.

Preventive treatment in precipitate labors is frequently impossible. The damage may be done before the obstetrician arrives upon the scene, or, if he is present, the expulsive forces act with such violence and rapidity that there is nothing he can do to anticipate the injury to the tissues. If the labor is protracted, he can remedy faulty positions, converting occiput-posterior positions into occiput-anterior, or effect version, or perform symphysiotomy. He can perform version in transverse positions and always be prepared to apply the forceps before the tissues are so injured by pressure that destructive consequences are almost inevitable. The limits of this paper will not permit me to enter at length upon the indications for the various operations which may be performed in protracted labor, and the reader is referred for such matters to the standard writings upon obstetrics. When the head has reached the vulva, injuries to the soft parts may be prevented or minimized by judicious manual interference. My plan is to introduce two fingers of the left hand into the rectum and extend the head, while with the right hand the tissues of the vulva are pushed back from it. Of course this is only in protracted labor when the interests of both mother and child demand that compression upon the head and neck should be terminated as quickly as possible. I am confident that by thus *shelling out* the head I have many times not only relieved the child from impending asphyxia, but prevented extensive injury to the soft parts of the mother. The labor having been concluded, careful and thorough inspection of the birth-canal is always imperative. There should be no exceptions to this rule. Of course there are cases in which the patient is so debilitated by the labor that a prolonged operation, if necessary, would at that time be out of the question, but the obstetrician should know exactly the condition in which the birth-canal has been left. I have seen numerous mortifying results from the neglect of this rule. If the uterus has been ruptured and the patient is in an exhausted and collapsed condition, it does not seem to me that much is to be gained by the heroic operations which are sometimes performed with almost unvarying result. Hemorrhage must of course be stopped at any hazard, but the removal of the uterus in such cases can give but one result in all but exceptional cases. It seems to me far wiser to trust to the possibilities of the tampon and drainage in such extreme cases. If, however, the patient is in fair condition, an abdominal section, with suture of the rent, and gauze drainage, if necessary, may be indicated. Not a few successful cases of this character are recorded, but fortunately a single individual sees few cases of this deplorable condition in a lifetime of experience. The question of immediately closing rents in the vaginal portion of the cervix has been much discussed since Pallen proposed it a score of years ago. It is well known that Emmet, whose authority on this subject is pre-eminent, advises against it unless the rent be so extensive that serious consequences from hemorrhage or inflammation would be almost inevitable. Nature does indeed effect wondrous cures of injuries of this character. On the other hand, there is no injury of the entire genital apparatus which has called forth so much subsequent surgical attention as this, and I cannot appreciate the logic which demands immediate repair to vaginal injuries and leaves those of the cervix for a remote and indefinite future. I have performed the operation for profuse hemorrhage, simulating hemorrhage from the uterine sinuses, with very satisfactory results, and am prepared to recommend that if the injury is such that it will be likely to require surgical treatment at any time, the best time to give it, *as a rule, is immediately after the con-*

clusion of the labor, a sufficient number of chromicized catgut sutures being used for that purpose. Rents of the vagina, in whatever portion they may be found, should also be closed immediately after labor is concluded, and with the same material. This practice is now almost universally approved, and after trying various suture materials I have concluded that the best results are to be obtained with fine, aseptic, chromicized catgut. Except in rare cases in which laceration has been extensive, and in which more or less tissue must be exsected, it is desirable to follow with the sutures the direction of the injury, bringing the divided parts together in their natural relations. I am in the habit of closing even small fissures in the mucous membrane of the vagina, vulva and vestibule, for the effort of passing a few interrupted sutures is small, and one can never tell how much it may signify to the patient in averting sepsis or cicatricial contraction or other disagreeable consequences which may make life a burden, and which may thus easily be obviated.

MALIGNANT GROWTHS OF THE SKIN, PARTICULARLY OF THE FACE—THEIR EARLY RECOGNITION AND TREATMENT.[1]

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It is not the purpose of this paper to enumerate all the malignant diseases of the skin, nor to detail all of those that are known to attack the integument of the face, but rather to call attention to certain affections having a special predilection for this region, which, according to the writer's experience, especially merit attention at this time. It is to medical men engaged in general practice that those afflicted with the conditions to be considered first apply for aid. For this purpose, and to present the subject briefly, but two cardinal pathological conditions will be considered—tuberculosis and epithelioma—they being the malignant growths most commonly encountered, and upon whose early recognition and prompt treatment so frequently depends the patient's life.

By tuberculosis of the skin we mean an inflammatory condition occasioned by the presence of the bacillus tuberculosis, which leads to gross destructive changes in the part attacked, from which it has been named lupus Two varieties of this disease are met with—lupus vulgaris and lupus erythematosus. The first is encountered early in life and most frequently appears during the second decade. Lupus erythematosus seldom appears before thirty, and from the greater resistance the skin acquires against this bacillus at this time, it appears in a milder form, is not accompanied by the disfiguring loss of structure which characterizes lupus vulgaris, and less frequently leads to a fatal termination.

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[1] Read before the Ohio State Medical Society, at Put-in-Bay, June 28, 1893.

Confined to the skin, lupus is fatal to the integrity of the parts affected, but not to the life of the patient. It is only when it extends to the internal vital organs that it becomes a fatal disease. As it most frequently attacks the face, particularly the nose and ears, its close proximity to the mucous surfaces facilitates its fatal extension to the meninges of the brain and the pulmonary tract.

Jonathan Hutchinson was wont to maintain that the lupus process seldom extends into the air passages, although it was frequently encountered on the gums, tongue, and sometimes in the œsophagus. He had seen it in the rectum in one case. Unfortunately this immunity of the air passages does not obtain in Northern Ohio, as shown in the following case, which is selected from others of the same kind:

CASE I.—Annie N.,[2]—aged thirteen; delicate: mother died of phthisis two years previously. When the patient came under my care, November 24, 1890, one year after the onset of the disease, there was present a dark-red spot, about the size of a silver three-cent piece, on the right cheek. Irregularly scattered about it were millet-seed-sized papules or tubercles. They were not elevated above the surrounding skin and the central lesion was even slightly depressed. This latter was covered with loosely adherent scales and a few small crusts, upon removal of which an irregular, easily bleeding surface was exposed. The right lower half of the nose was also involved, as was the nostril of the same side, which from the inflammation and cicatrization resulting therefrom had contracted the opening to about half its normal size. In dilating the orifice sufficient for an examination it bled freely.

The patient was given the potassium iodide to full toleration and the compound tincture of gentian. Locally an ointment containing salicylic acid, grs. xxv.; oleate of mercury (ten per cent.), ʒ j.; and vaseline, ℥ j.

On December 6 the eruption showed a marked improvement, but the potassium iodide was ill borne and recourse was had to a pill containing iron, arsenic, and strychnine. This line of treatment was followed until October 1, 1891, at which time the eruption remained *in statu quo*. Repeated scarifications were then begun, as recommended by Vidal and others .After scarification, the surface was touched with creasote, and capsules of creasote were given internally.

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[2] Clinical lectures at the Hospital for Skin Diseases, Blackfriars, London.

December 25.—The eruption was better than at any time since the beginning of treatment. There was, however, a grayish-white patch surrounded by a bright red areola on the mucous membrane of the lower lip.

December 26.—A lesion similar to the one last noted had now appeared on the roof of the mouth, about an inch in front of the uvula.

Soon after this it was noticed that the patient was loosing flesh rapidly ; she had a cough, and upon examination moist râles were detected in both apices. The patient grew worse rapidly and died of phthisis during the Summer of 1892.

Although the lungs afford a favorite seat for the grave sequelæ of lupus, yet other structures may become involved, as in the following case :

CASE II.—Maggie R., aged twenty-seven, seamstress, family history free from tuberculosis in its various forms, developed a patch of lupus on right cheek at the age of seven years. It was about the size of a twenty-five cent piece and remained in a quiescent state until the age of puberty, when it assumed a more active condition. I saw the case for the first time February 16, 1884. At this time the face was badly disfigured. Scarification, caustics (the nitrate of silver and the acid nitrate of mercury), and the internal administration of iodine and cod liver oil were employed, but the disease extended. Finally the external auditory canal was attacked and completely occluded with exudative material. In this position local measures could be but ineffectually applied. About four months after the patient complained of deep-seated pains in the ear, followed by delirium and death in September, 1886.

The autopsy revealed an accumulation of pus in the internal ear and tubercle nodules in the meninges of the brain on the corresponding side.

Even more frequent as well as more fatal than tuberculosis is the rebellion of cells known as epithelioma. By this term we designate an infiltrating growth in the skin composed of cells of the ephithelial type. Ephithelioma has likewise a subdivision in rodent ulcer, which differs but little in histological structure from cancer, yet, from its course and clinical aspects, it is entitled to a certain distinction, if not to be regarded as a disease *sui generis*. (According to Thin, the cells of rodent ulcer have a uniform nucleolus, a non-granular protoplasm, and are characterized by the absence of epithelial nests.) Whether with

Malassez, Albarran, Cornil, Dubreuilhour and Wickham, we accept the theory of the psorospermoses, or not, we are certain that epithelioma develops in those parts of the skin which from their exposed position are subjected to irritation, or repeated injury; As a consequence, they are less liable to resist the invasion of an external foe or regain their healthy tone after slight though repeated departures from the normal.

Believing that the various lesions and anomalies in which epitheliomata so frequently develop are at the onset distinctly local affections, it becomes necessary to speak of them as a premonitory condition. With epithelioma when developed, text-books are sufficiently explicit to make it easy of recognition, and need not further concern us here. It is with the condition in which the death-dealing process lurks behind the mask of the simple anomalies of the skin, or in the simple and, at first, benign pathological disturbances of its structure, that we wish especially to deal at this time.

Of the congenital anomalies of the skin which after the fourth decade of life becomes cancerous, the papilomata stand at the head. In these the histories present a marked similarity in that at a certain time the wart was injured, or that at times when irritated it became red and slightly painful. This condition may have continued for months or years, when, finally, from some lowering of the general systemic tone the well-recognized characters of a malignant growth appeared. In the acquired papillomata the transition from the benign to the malignant is usually more direct. Neither does the presence of pigment exert any influence in determining this unhappy termination. For example, the lip has been exposed to the irritation of a pipe or a cigar; as age advances it shows the effects of this long-continued local stimulus in the form of an hypertrophy—in this it but follows the natural law. In some there appears at the focus of irritation a variously sized and shaped villous growth—a papilloma—on others this gives rise to an abrasion. Months and years go on, the part is subjected to the round of plasters and ointments, all more or less irritating, until finally, under this systematic cultivation, its malignant nature becomes strikingly apparent.

In the same way, certain diseases of the skin predispose to epithelioma. Especially is this true of the derangements of the sebaceous glands. For this reason acne is always a source of menace to old people. What is even more common in the aged than acne is the form of seborrhœa of the face, which has been aptly called by the French *séborrhée croûteuse.* This appears in the form of variously sized plaques, slightly raised above the surface, of a yellowish-brown or muddy color, firmly adherent, and when forcibly detached presenting a base not unlike that in erythematous lupus. These sebaceous plaques usually break down late in life, and not infrequently give rise to epithelial cancers.

Several cases are on record in which epithelioma has been engrafted on lupus of the face. I have a photograph of an epithelioma occurring in the cicatrix of lupus, the two diseases existing side by side. The patient was an old woman, who had been afflicted with lupus vulgaris since the age of twenty. At the age of fifty-three the malignant sequelæ herein shown appeared.

Treatment.—It is of the first importance that treatment be begun early in the history of the disease. For this, its early recognition, is necessary. Again, the ultimate success will depend upon the thoroughness with which the procedures adopted are carried out. The diseased process being confined at first to the structure of the skin, local measures are the ones upon which we must rely. It must also be borne in mind that in both lupus and cancer a vitiated constitution will enable the disease to pursue a rapid course. For this reason, the general management of the cases should never be lost sight of. Proper hygienic surroundings, good food and the ability to appropriate it, should if possible be maintained. For this, the vegetable bitters, iron and, in some cases, cod liver oil, will be indicated.

In the local treatment of lupus thorough destruction of the *materies morbi*, and care that the adjacent healthy structure be not exposed to contagion, are the first objects to be attained. Further than this the method may be largely a matter of individual preference; those most in vogue are, first: Destruction *in situ* by caustics, such as the stick of nitrate of silver, pyrogallic acid, the galvano-cautery, etc. Second. Enucation with Volkmann's spoon and cauterizing the walls of the cavity by either of the above; or, what is, I think, better, carbolic, sulphuric, or salicylic acid. In this latter procedure there is danger of reinoculating the patient as well as of infecting the operator, for the tubercles are very vascular and blood is with difficulty prevented from entering the nostrils and mouth of the patient, while the apple-jelly contents of the tubercles readily spatters on to the operator's face and may be inhaled by himself and his assistants. To obviate this, I adopted the *thérmo cautere*, of Paquelin, about six months ago. The result has been highly satisfactory, for immunity is not only afforded to others, but by its use the destruction can be more thoroughly performed, and the walls of the cavity infiltrated with tubercle bacilli, although they offer a firm resistance to the scoop, hold out no barrier to the actual cautery. Even in the milder form, lupus erythematosus, I believe the thermo-cautery offers the quickest and most efficient means of relief. In regard to the simple growths that lead to epitheliomata, their early destruction is the safest course, although the laity are thoroughly impressed with the *noli me tangere* sentiment and frequently object to their removal until the most favorable time is passed.

Papillomata of congenital origin, when on the face, or where exposed to the friction of the clothing, should be removed early in life. For this purpose electricity offers the best means at our command. The process is known as electrolysis, and consists of the continuous current passing from needles which are thrust into the base of the growth. The strength should vary according to the size of the tumor; usually a battery of eighteen cells, or from ten to twenty milliampéres of current, will be sufficient. This when carefully performed leaves no scar, and is devoid of the formidable procedure that necessarily surrounds the knife. In the papillary growths that appear later in life the same treatment may be adopted. For the small indolent ulcers that appear on the lips, as well as on other parts of the face, the pyrogallic acid (ten per cent.), salicylic acid in collodion (ten per cent.), or the Vienne paste when applied early, will prove efficient in many cases. Seborrhœic plagues may be removed by escharoties, but electrolysis is to be greatly preferred.

Finally, when epithelioma is actually present there are two methods which hold out the surest means of relief—electrolysis and the knife. My experience with the first leads me to believe that thorough destruction along the channels of absorption can best be accomplished by its use, and that recurrence is less common than by any other at our command.

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PROCEEDINGS OF SOCIETIES.

PAN-AMERICAN MEDICAL CONGRESS.

First Meeting, Held at Washington, D. C., September 5, 6, 7, and 8 1893.

FIRST DAY, TUESDAY, SEPTEMBER 5.

The meeting was called to order promptly at ten o'clock by the president of the Congress, Professor William Pepper, M.D., L.L.D., of Philadelphia. Prayer was offered by the Right Rev. William Paret, D.D., bishop of the Episcopal diocese of Maryland. This was followed by an address by President Cleveland. The Congress wa formally opened by Honorable Grover Cleveland, President of the United States, who said: "Few words are necessary from me on the present occasion. I am only glad of an opportunity to say how pleased I am to be in any way related to such an association as this, assembled for the furtherance of the highest and noblest aims which can actuate mankind—the protection of the public health and the prevention of contagious and epidemic disease. Where more properly can such questions be discussed than at the capital of a nation which appreciates all which pertains to the commercial relations and easy intercourse between the different nations of the Western world? Where can the question of the alleviation of human suffering be more fittingly considered than at the capital of a nation whose highest aim is the welfare of the individual? It only remains for me to declare the Pan-American Congress open for the transaction of the business which has called it together."

ADDRESS OF WELCOME.—An address of welcome was delivered on behalf of the District of Columbia by Honorable John W. Ross, L.L. D., president of the Board of Commissioners, D. C.

President William Pepper made a few general remarks defining the general scope of the Congress.

A response was made on behalf the British West Indies by Dr. James W. Phillippo, of Jamaica, who said that his island home, while from the British point of view the key to the Gulf of Mexico, was also an outpost of the United States, and pledged himself to do all in his power to further the mutual hygienic interests of the two localities.

Dr. Montizambert, of the Grosse Island quarantine station in the St. Lawrence River, responded for British North America, alluding to the conferences which had been held between Canada and the United States through the medium of the American Public Health Association, and to the value of having, as was now the case, health representatives of each country at the ports of the other.

Dr. James W. Hibberd, of Indiana, president of the American Medical Association, said that the latter was the parent of this and all similar organizations in this country, and had encouraged their organization. Speaking for the body over which he had the honor to preside, he re-echoed the wish that the closest relations might exist between it and the present Congress.

The report of the Secretary General was made by Dr. Charles O. L. Reed, of Cincinnati, who said that the present condition of the Congress and its official handbook must constitute his report.

THE FLORA OF AMERICA IN ITS RELATIONS TO MEDICINE.—The formal address of the session was made by Professor Francisco A. Resquez, of Caracas, Venezuela, on this subject. We regret that want of space forbids the re-production of his remarks.

SECOND DAY, WEDNESDAY, SEPTEMBER 6.

Brief addresses were made by Dr. Victor Luis Jilles (in French), representing Hayti; Dr. Gregorio Mendizabal (in Spanish), of Orizaba, Mexico, on behalf of that country; Dr. Manuel A. Muñez (Spanish), representing Peru, and Dr. Pedro LaGlasa, of Buenos Ayres, representing the Argentine Republic. The latter gentleman was obliged to travel thirty days in order to be present.

GANGRENE—ITS PATHOLOGY, SYMPTOMATOLOGY AND TREATMENT.—This was the title of the formal address of the session, and the paper was read in English by Professor Rafael Lavista, M.D., of the City of Mexico. Gangrene, he said, could be divided into two varieties, septic and aseptic. He confined his attention to a consideration of the form occuring spontaneously. He traced the gradual development of the train of pathological sequences, starting with the first impairment of the endothelium lining the vessel, and ending with its partial or complete occlusion. Allusion was made to the various modifications of the process which the peculiar anatomical relations of each part might determine.

A careful analysis of the symptoms and signs of the disease was given, and the general methods of the treatment by modern surgical procedures are outlined.

The president stated that in view of the importance of continuing the inter-continental work so auspiciously begun, it was advisable that the International Committee of the Congress should be empowered and requested to secure proper govermental recognition, 1st, for the necessity of preventative medical measures; 2d, for the necessity of a uniform American Pharmacopœia; and 3d, for the elevation of the standard of medical education.

A motion to this effect was introduced and carried.

A resolution was introduced by Dr. J. D. Brown, of Texas, relative to the matter of urging upon certain governments the importance of sanitary work. Especial stress was laid upon the matter of Dr. Ernest Hart's recommendations relative to sanitation in India, the home of cholera. By the rules of the congress this resolution was referred to the International Committee, as was also one adopted by the section on Hygiene, Climatology, and Demography, relative to the importance of a cabinet health officer in each country. According to the terms of the resolution, such an office should be national in character. Its incumbent should have a parity of voice and vote in the national councils. He should exercise an independent executive authority comparable to that of other cabinet officers, and finally should be an educated and experienced medical man.

The Chairman of the Local Committee of Arrangements for the meeting of the American Medical Association at San Francisco, in June, 1894, was introduced, and outlined the work already accomplished. He promised abundant hospitality, a good attendance and a successful gathering.

EVENING SESSION.

The session was devoted to the President's address, by Dr. William Pepper, of Philadelphia.

This address, having been widely published in the daily papers, will be omitted here.

SECTION ON GENERAL SURGERY.

First Day, Tuesday, September 5.

John B. Hamilton, M.D., L.L.D., of Chicago, Ill., President, in the Chair.

Address of the President. "Colleagues, for the first time in the history of the American continent, the medical men of the Americas meet for the purpose of scientific advancement and the cultivation of closer relationship. The countries of Washington, the land of Bolivar, and the sunny islands of the Southern seas, send their representatives to this capital of their oldest republic.

Our statesmen long desired close union between the American republics, and the medical profession have always stood ready to carry out their share of the patriotic duty; and we are inaugurating the first of what we hope may be the beginning of a series of Pan-American Congresses.

The rapid evolution of surgical knowledge is one of the wonders of this remarkable age, and surgeons may fairly claim that their own branch of the profession has kept pace with the stupendous advance made by the collateral sciences.

The labors of Darwin, Huxley, Herbert Spencer, Pasteur and Lister, in the last decade, have made possible the practical sucesses of the present decade.

There is at this time no organ or tissue of the body removed from the remedial scalpel, and the questions presented are rather those of method than those of original discovery.

Surgical Bacteriology.—This study, which includes that of microbic products, has still much to disclose, but we base our practice upon the immortal discovery of Pasteur.

ANTISEPTICS of the ANCIENTS.—The vulnerary compounds of the ancients were largely composed of what we now know as antiseptics. The terebinthinate and metallic dressings of the Alexandrian period, we can accept to-day as true antibacillary agents. The red hot iron and boiling oil of the ancients may be said to have formed a true aseptic eschar. They knew nothing about aseptic surgery. They were ignorant of causes, all they were interested in were the good results obtained. While bacteriology has added much to our knowledge of tuberculosis, though still less of carcinomata, the treatment of both still remains unsatisfactory, and as yet no Pasteur or Harvey has dawned upon our horizon to unveil the mystery to which heaven has not given this generation the key.

Through improvements in technique, etc., in all probability tuberculosis and carcinoma will be classed among the preventable diseases.

Either of these two diseases alone causes more deaths than yellow fever and cholera combined, yet no government has set on foot any systematic or scientific inquiry as to its causation or propagation. Much, however, has been done by the Bureau of Animal Industry in studying and preventing animal tuberculosis, but among human beings practically little or nothing has been done."

A BRIEF SPLINT TECHNOLOGY for SURGEONS.—After the President's Address the afternoon session opened with the reading of a paper with the aforesaid title, by Edward A. Tracy, M. D., of Boston, Mass.

The objects of this paper are to treat in detail of a new material and method used in surgical splint making, to urge the surgeon to become the maker of suitable splints for cases occurring in practice, and to indicate lines of procedure in apparatus-making, which promise rich results in general and orthopedic surgery.

Material.—Its basis is wood pulp, made preferably from the crushed fibre of the poplar tree. It is rolled into sheets in such a manner that the fibres intertwine loosely in every direction, thus giving an increased ductility to the product. These sheets are further strengthened by having a fabric introduced between the layers of the pulp, or by interweaving with the short, crushed wood-fibres a long jute or other tough fibre. These sheets are made of several thicknesses, which I shall designate by number for convenience, each figure representing one millimetre. Thus, sheet No. 1 has a thickness of one millimetre, sheet No. 2, of two millimetres, and so on.

The characteristics of this material are stiffness or rigidity when dry, and plasticity with toughness when moist. Its rigidity can be increased *ad libitum* by the use of a silicate solution as a moistener.

Applied over Irregular Surface.—A splint cannot be directly moulded over the ankle-joint, owing to the great irregularity of the surface presented. This can be overcome in several ways. The anterior splint should be cut from sheet No. 1, and applied, after moistening, to the limb, taking care to keep the outer border in contact with the skin and the superfluous material pinched up between the thumb and forefinger, and a bandage applied to perfect the moulding of the splint. A second way is to cut away the superfluous material, bring the edges together, and retain them there by a strip of material over the cut edges.

Moisteners.—Water, or a stiffening solution, can be used to moisten the material previous to moulding. The advantage of water is its omnipresence, and with its aid a very serviceable splint can be made. Such a splint, however, is liable to be softened by the absorption of perspiration, or, on children, of urine; and for this reason, as well as for cleanliness, it should be protected by a covering of oiled paper or silk, or mackintosh, or, best of all, by a coat of varnish.

Potassium Silicate.—A solution of potassium silicate has several qualities which render it the best of the stiffening solutions experimented with. Any desired degree of rigidity up to brittleness can be given the splint by using a silicate solution as a moistener. The stronger the solution the more rigid the splint.

In making a silicate solution, the best one for ordinary use is one made by taking seventy parts of the commercial solution sold to surgeons and adding thirty parts of water thereto. A splint rendered rigid in this wise is not affected by perspiration. Another quality, of exceptional advantages in compound fractures, is that this solution has strong antiseptic properties.

Dextrine.—This solution is made by mixing one-half pound of dextrine to a pint of water. A splint with this solution can be remoistened and remodelled, which is quite an advantage in many instances, as in cases where swelling disappears, it can be brought into closer approximation. The dextrine can be carried about in powder form, and by the addition of eight grains of corrosiv sublimate an antiseptic solution can be made at a moment's notice

Manner of Moistening the Sheets.— This is most satisfactorily done by applying, by means of a flat paste-brush, the fluid used, on both sides alternately, of the splint-blank, and repeating until the proper amount of the fluid is absorbed.

Amount of Moisture.—Practice enables us to determine the exact amount of moisture suited for our purpose. As a rule, get just sufficient amount of moisture to render the blank somewhat flaccid. If too moist it becomes difficult to retain it in shape while drying, besides causing unnecessary delay.

The time required varies from ten to forty minutes, the thicker sheets requiring more heat. Any source of heat will answer, and while drying you should see that the desired shape is retained until permanently fixed.

SPLINT HEADINGS.—I shall briefly consider their application to the human body, under the headings of: 1, head splints; 2, trunk splints; 3, upper limb splints; 4, lower limb splints.

The above simplicity of classification will be necessarily violated in specific cases where compound splints, embracing parts of different systems, are constructed. I shall briefly describe two splints.

Spinal Column Splint.—This is simple and cheap. The blank is cut from sheet No. 1, and the potassium salicylate solution used, and should envelop the patient's body once and a quarter around. The patient should be placed in same position as for a plaster jacket, with light woolen garments underneath, and bringing the sheet around the body. A hinge is made by bending the pulp until sufficiently broken. The surface should be pressed well into the hollow of the back, and superflous material pinched or folded up as before described.

Forearm Splint.—This makes a very light and serviceable splint, and retains the bones in position without the annoyance of carrying a weighty, cumbersome splint; a simple palmar forearm splint answering in most cases.

In the discussion which followed, Dr. McLane, of Detroit, Mich., said as serviceable a splint as was necessary could be made extemporaneously from a roll of newspapers, which, as a rule, could always be found at hand; they were light, cheap, and could be moulded to suit all cases of forearm. In Colle's fracture an anæsthetic should be used, and when properly set no splint is required except a little plaster to give support where there is a tendency to displacement, and without a splint we are enabled to keep up passive movements of the finger joints, which we should always do to avoid contractions, etc.

Dr. Reginald Sayre, of New York City, said while the splint was a serviceable one, however, the crinkles and puckerings incidental to pinching up the folds when moist to make it fit the spine, would not make it a very comfortable surface for the crest of the ilium to rest upon. It could not be adapted closely enough to the body of a child with prominent bones to make it a comfortable support. It should be fitted to a model instead of the child, if you wish to make it accurate.

SECOND DAY, WEDNESDAY, SEPTEMBER 6—MORNING SESSION.

SIMPLICITY IN SURGERY was the title of a paper by Robert W. Johnson, M.D., of Baltimore, Md. Simplicity in all surgical operations is the one great thing which all should keep in view. The tendency of the present day appears to be for the majority of surgeons to add something new to an instrument or an extra twist to a suture, upon which he can hang his name. The immortality of any discovery is intensified by its simplicity. A surgeon should be able to devise plans so simple that his operation can, in an emergency, be done in a hovel as well as in the hospital. Do not understand me to say that I would do away with all precautionary measures; on the contrary, I would not sacrifice an ounce of care for a pound of simplicity; but strip all operations of useless, cumbersome frills. We should use home-made appliances wherever we can, and there is nothing so variable as the so-called antiseptic treatment.

Surgical cleanliness is essential. Boiling is a practical germicide, and by placing your instruments, tray and all, in boiling water for a stated period you render them thoroughly aseptic, and this can be done in any kitchen. A brush and bichloride solution for washing the surrounding parts is all that is necessary. Should you wish to apply an antiseptic dressing, gauze wrung out in bichloride solution will answer nearly all purposes. Then render the hands aseptic and observe all ordinary laws of cleanliness.

Gun-shot Wounds.—What better treatment than leave the bullet alone, unless it carries with it some of the clothing or other septic material with it into the wound? I seldom rummage for a bullet unless complications are present other than the bullet itself.

Sutures.—New sutures are brought to our notice, lasting for a few days and then giving way to a newer one or bobbing up under a different name; but the simpler ones still survive.

Hemorrhage.—Various bands and appliances have been and are continually being devised for controlling hemorrhage, but the Esmarch's has come to stay, owing to its simplicity.

In the discussion which followed, Dr. Quimby, of Jersey City, remarked: "We need such wholesome criticisms. The complex preparatory arrangements made by some surgeons have often been a source of injury to the patient, by adding to the time consumed by the operation and keeping the patient under the influence of anæsthetics for an unnecessarily lengthy period."

OBSERVATIONS ON THE ROTARY LATERAL CURVATURE OF THE SPINE WITH SPECIAL REFERENCE TO ETIOLOGY AND TREATMENT was the title of a paper by Jacob Teschner, M.D., of New York City. The usually unsatisfactory results derived from the treatment of these cases indicate the importance of proper and early attention.

Etiology.—Occurs most frequently between the seventh and fourteenth years. Girls are more prone to this disease than boys. Why this is so has not been definitely determined.

Passing over the various well-known causes, I will consider but the following four, viz.:

1. Hereditary tendency. 2. General temperament, and the condition of the mind and nervous system. 3. Lack of development of the muscular system, and the general physical condition. 4. Habitual faulty position with superimposed weight.

Hereditary Tendency.—Frequently I find decided scoliosis in the mothers of girls brought to me for treatment.

General Temperament and the Condition of the Mind and Nervous System.—Most girls afflicted are apathetic, indifferent, lazy, and somewhat morose, and are disinclined to romp and play with the same vigor as their companions after school hours. The facial expression is frequently a vacant stare, with dropped jaw and open mouth, giving the patient a silly appearance; all of which changes after energetic treatment. There is a lack of co-ordinating power, making it impossible for some patients to fully extend an entire extremity. If the wrist is extended, the elbow is apt to be flexed. This lack of co-ordination also disappears on treatment.

Lack of Development of the Muscular System and the General Physical Condition.—General muscular development is very poor, some of the muscles being almost rudimentary, and when suspended the patients are rarely able to sustain their own weight Physical condition is bad and associated with poor digestion.

Habitual Faulty Position with Superimposed Weight.—Resting the weight of the body more upon one foot while standing, or sitting more upon one buttock, permitting the shoulders to fall forward, permits a sagging of the upper portion of the body upon the lower, and twists the spine and trunk into a mild form of deformity, which, if persisted in, becomes permanent, by producing actual bony and ligamentous changes. Faulty sitting is more frequent than faulty standing, and is particularly noticeable in the school room.

I here wish to call attention to the pernicious effect of long and continued school hours without intermission for play or calisthenics, and also improper furnishing of school-houses with benches, chairs and desks of a regulation size, regardless of the varying sizes of the pupils.

Treatment.—The first step is prompt removal of the causes. Deformities of all kinds should be corrected. Keep the child away from school. Attend to the general health. Frequent baths to improve the condition of the skin. Tonics, if necessary to improve muscular and nervous systems, and by sufficient open-air exercise.

The patient should have a properly constructed chair to sit upon. The back of the chair should properly fit to the child's back, reaching to the shoulders, with the feet resting comfortably on the floor. The patient should rest frequently by lying supine upon the floor, with lower extremities extended and arms fully extended above the head. Self-suspension twice a day should be advised.

Treatment of the Three Degrees of Scolioses.—1st. Habitual scolioses which can be obliterated by the voluntary muscular efforts of the patients. In these cases I rely entirely upon the general directions before described, and systematic and regular gymnastic exercises. I give no support of any kind, not even a corset, thus leaving the muscles which are being developed and strengthened by exercises entirely unrestrained and free. 2d. Scolioses unaffected by voluntary muscular efforts, but which can be reduced or obliterated by suspension of the patients. I adopt the plan of treatment as in the first class of cases, adding proper, light and well-cemented plaster-of-Paris corsets while the patients are suspended, and cause them to be worn until they can correct their deformities through their own muscular efforts. Where the deformities are only reduced under suspension new corsets are applied from time to time, until at last the deformities can be entirely obliterated by suspension. 3d. Scolioses where the deformities are fixed. To the treatment of the second class I add that of forcible daily twisting of the spine in compression of the ribs by the use of an apparatus used by Dr. A. Hoffor, of Würzburg, which is described in the *Zeitschrift für Orthopædischer Chirurgie*,1891. The result of this this treatment I am not, as yet, in position to speak positively, but I am led to expect a marked improvement from its use.

In the discussion which followed, Dr. Quimby, of Jersey City, thought the reason for the disease predominating among girls was owing to their faulty manner of dress compressing the vessels supplying the spinal column and thus cutting off its proper nutrition. I believe in giving the muscles full play, and so with the Sayre jacket, you must give the muscles play and not depend altogether upon artificial support in the treatment of the disease.

Dr. John C. Schapps, of Brooklyn, N. Y., agreed with Dr. Quimby, and from experience would give the muscles exercise in preference to relying upon artificial support.

In closing the discussion Dr. Teschnor replied that he took away all artificial support as soon as possible, but at first artificial support is absolutely necessary until the bones are able to bear the weight of the body. ,, My plan is to see that they get daily gymnastic exercise in a proper manner."

CAUSATION, PATHOLOGY, and TREATMENT OF CARBUNCLE was the title of a paper read by David W. Graham, M.D., of Chicago, Ill.

AFTERNOON SESSION.

RECUMBENCY IN THE TREATMENT OF POTT'S DISEASE was the title of a paper by John C. Schapps, M.D., of Brooklyn. N Y., in which he says it is not alone the collapse of a cavity produced by disintegration which is the local determining condition of the deformity of Pott's disease. The softened bone which surrounds for some distance and merges into the seat of actual destruction is squeezed out by longitudinal pressure, bent out by antero posterior leverage, and pushed out by direct backward pressure. To directly antagonize these deforming forces it is necessary to have a passive spine. Portative apparatus are limited in their efficiency by reason of the distance and heterogenous character and mobility of the parts which intervene between their points of application and the lesion sought to be controlled, and are ususlly applied with a view to maintaining the activity of the spine as a support and a base for muscular exertion. Recumbency means more than simply putting a patient to bed. It implies the retention of the whole spine in the best possible position,'so that the separate parts remain unchanged, or subject to such changes only as the surgeon may make. When the patient is horizontal, the force of gravity, which had acted when upright as a deforming agent can be converted into a reforming force. Direct backward pressure can be accurately antagonized. Muscular action and consequent interosseous pressure, now greatly reduced by the general condition of rest, can be overcome by fixation and by less traction than would be required to raise the weight of what were superincumbent parts. The spine thus relieved of the performance of all its active functions, and saved from all traumatisms except that of respiration, is placed in the best possible condition for repair. And, what is of great importance, fever and the drain of muscular spasm, pain and perverted nutrition, are met by a state of systemic rest. Clinical experience has demonstrated the truth of these theoretical considerations. When the proper conditions are maintained, patients are usually relieved of pain, sleep and eat well, and soon lose the drawn, old, tired expression so familiar on the faces of those suffering from prolonged muscular spasm. The improvement in general health which they commonly make is to those who have been burdened by the traditional fear of confinement, surprising. I believe that by systematic recumbency the course of the disease is materially shortened, much destruction is avoided and much deformity prevented. Another merit of this therapeutic measure is that its employment does not demand the mechanical skill and experience necessary to the successful construction and use of a portative apparatus. When a spinal brace cannot be readily obtained, recumbency may, if the mechanical conditions are carefully studied, be safely resorted to, until other arrangements can be made. Patients may be removed long distances with comfort, and safety upon a frame.

The indications for recumbency are: 1. As a routine measure, as soon as a diagnosis of spondylitis has been made, or even when it is probable. 2. In cases of patients wearing braces, persistent pressure sores, progressive deformity, psoas contraction, acute or increasing abscess, loss of power, pain, night-cries, grunting respiration, inclination to lean on chairs, etc., or any other suggestion by face, attitude, or gait that the proper degree of support has not been secured. For the fulfilment of all the indications a wheeled couch is recommended, consisting of an canvas support laced to an iron frame, which is adjustable at any convenient height or incline. The canvas is provided with the necessary aperture, closed by a flap. Straps, pads and weights are added for support, fixation and traction.

Adjustable pressure to antagonize the kyphotic projection is produced by means of straps. The patient need rarely be moved for any purpose whatever. When acute symptoms have been absent for several months the patient may gradually and tentatively be allowed greater liberty under the protection of a brace carefully adapted to the needs of the case.

TAPPING THE LATERAL VENTRICLES OF THE BRAIN was the title of a paper by Jacob Frank, M.D., of Chicago, Ill. There should be no hesitation in tapping the ventricles wherever it is indicated. In tubercular meningitis it is the effusion and not the deposit of tubercles which causes danger and death.

One case in point was that of a patient suffering from paralysis, loss of sensation and convulsions, and a diagnosis of tumor of the upper fissure of Rolando had been made. No tumor was found, but on tapping the ventricle three or more ounces of fluid escaped, giving immediate relief to the patient of all symptoms, none of which have since returned.

Method of Reaching the Ventricles.—In a general way, after the skull has been opened, it is not a difficult matter to puncture the ventricles from any portion of the cerebral cortex. From my own experience, by incising the membranes I can make a digital examination much better.

Instrument Used.—I prefer to use a cannula with a blunt stylet, as being less likely to wound any arteries.

Shall Drainage be Free and Rapid or Slow?—This must be decided in each individual case. If it is an inflammation in retrogression, tapping and removing the fluid without drainage is best. If there is an abscess of the brain which has broken into the ventricle, rapid evacuation and drainage is best and safest.

Indications for Tapping.—Among the most urgent are effusion of blood into the ventricles from trauma or disease, abscess involving the ventricles, chronic hydrocephalus without enlargement of the head; with enlargement of the head it is likely to lead to fatal results.

In discussing Dr. Frank's paper, Dr. Graham, of Chicago, said, in all cases of traumatism and inflammation with one sided paralysis, tapping should be done. and if we have or suspect abscess, the case is not properly investigated unless we have explored the ventricular cavity.

Professor Lavista, of the City of Mexico, said that he fully agreed with Dr. Frank, but instead of simply trephining he would perform craniectomy, which was more conducive to a final permanent cure than tapping alone.

SOME POINTS IN THE SURGICAL TREATMENT OF APPENDICITIS was the title of a paper by Augustus P. Clarke, A.M., M.D , of Cambridge, Mass. In every case in which there is reason to believe that the vermiform appendix is involved, though the symptoms at first may be mild or transient, the surgeon or medical attendant should be ready to institute measures against the occurrences of sudden surprises and unusual results. There is great probability in almost any event that the appendix, during an attack of inflammation, will become adherent to other parts in the immediate vicinity. In many cases, if not in most, the incision should be made over the point of greatest tenderness; this corresponds to the McBurney point. A liberal incision, when timely, made over the tender part, has always yielded, in the cases occurring in the author's practice, an immediate and permanent result. In all cases after the incision has been made the parts should be thoroughly explored; if the appendix is within easy reach it should be brought forward and then sawed off by means of sutures of aseptic kangaroo tendon. The cordwainer's stitch will be most convenient for accomplishing this. If, however, the appendix is bound down by firm adhesions, or if it cannot be found without much difficulty or without doing excessive violence to the cæcum or to other parts, it will be far better to allow it to remain, for its presence, when thus left, will not seriously interfere with the patient's recovery. In most cases when the mesentery or other parts have been sufficiently detached the appendix should not be tied but should be clamped, and then sawed off by means of carbolized animal sutures; as soon as all hemorrhage has been controlled the appendix may be incised about two centimeters from the cæcal tissue. In order to prevent adhesions of the stump or base of the pedicle to other structures, the peritoneal tissue in immediate vicinity of the margin of the incision should be closely approximated by a subperitoneal suture. The smaller sized kangaroo tendon, rendered aseptic, should preferably be the material for such use.

The danger of the subsequent occurrence of hernia may be overcome by paying strict attention to the closure of the severed layers that have been divided in the operation; the peritoneum, the muscular tissue, the fascia, and the external integument should each be brought together separately. Carbolized animal sutures should be used for this purpose. Entire closure of the wound by the first intention can be effected only in those cases in which the operation has been undertaken in the early stage of the attack. After the formation of an abscess complete union at first cannot be expected to follow, because some method for facilitating drainage for a while will have to be employed. Trendelenburg's posture in this, as in all cases of abdominal section for intestinal affections, cannot be overestimated. In every such case of abdominal section when a drainage-tube has been employed, the possibility of the occurrence of hernia should not be overlooked. In all cases, whether the drainage-tube has been required or not, a firm binder or a thorough bandaging should be employed; the patient for some weeks should be kept for the most part in the horizontal position. The question often arises: Should the surgeon, when called upon in the later stages of a case, advise operative interference? In answer to this, it may be remarked that our experience in such cases is favorable to the adoption of an exploratory incision. When an operation is undertaken in the later stages, the patient must, of course, assume more risks, for the chances of recovery are much less than when an operation is attempted much earlier, though surgical measures at such late date may prevent the rupturing of an abscess into the peritoneal cavity; when there has been such a rupture, removal of the pus and cleansing of the parts may afford an opportunity for a retrograde process of the disease to take place. Nothing, therefore, but the occurrence of extreme collapse should weigh against the employment of operative measures. In those cases of appendicitis which have gone on to suppuration before operative measures have been undertaken, there may occur secondary abscess in other portions of the abdominal cavity. An operation to insure relief must therefore embrace a course of procedure which will afford a free discharge to all accumulation of purulent exudation; it will sometimes be necessary to make a prolonged dissection at different parts and also to overcome adhesions of an unusual extent. Great care will also have to be exercised lest an opening be made into an adherent intestinal mass. In some instances portions of the epiploon may have become gangrenous; there may occur in the veins of the abdomen an inflammation that may extend outward to the other vascular tissue. In carrying out, for these complications, the necessary surgical treatment, much judgment will have to be exercised, and much precaution taken that the dissection or search be not prolonged beyond what may afterward prove to be a beneficial or safe proceeding.

SECTION ON GENERAL MEDICINE

First Day, Tuesday, September 5.

Victor C. Vaughn, M.D., of Ann Arbor, Mich., president, in the chair.

The Principles of Immunity and Cure in the Infectious Diseases was the subject of the president's address. He said that he wished to present a theory of the immunity of the infections. Theories benefit chiefly by their suggestiveness. A theory must not be valued entirely by its truth, but its use in leading to results must also be considered. Immunity may be natural or acquired. For example, the domestic fowl is not susceptible to anthrax, but the fowl may be rendered susceptible; still the immunity is natural. The child is susceptible to diphtheria; the adult takes it with difficulty. Dr. Vaughn believes that immunity is inherent in the parent cell. The difference in immunity is in the person, not in the anthrax. The germ is the same, but the adult immunity is due to the attained cell activity. Dr. Vaughn believes that immunity is a question of cells, not of chemistry. Ehrlich believed immunity wholly humoral. This view must be modified. The transmission of immunity from the father to the child must be cellular. The head of the spermatozoa is fused with the cell of the ovum. There is a quantitative relation between cause and effect in the production of immunity. A man may have small-pox a second time if the exposure be very virulent or the man's health is much below par. The immunity produced by a germ is greater than that produced by a vaccine. A third method is by sterilized cultures. What constituent of the sterilized culture gives the immunity? All will agree that it is not the ptomaïne.

The theory of antitoxins is very convenient. This is not the same as the killing of certain germs by their own productions. It is, however, as if we should find in nux vomica an antagonist to strychnine.

The immunizing substance is in the germ itself. Artificial immunity has not been obtained except by the the injection of the germ itself in its own cell-wall or in solution. The same effects have been obtained by the bodies of bacteria or live bacteria modified.

Dr. Vaughn insists that the immunizing substance is part of the germ itself. It is not a split product, but the essential characteristic part of the cell. The three methods of immunity are in principle the same: 1, by an attack of the disease; 2, vaccination; 3, sterilized cultures.

The immunity is due to some part of the cell or something produced by the cell. What organs of the body are effectual we do not know, but probably the cell producing glands. The spleen, the bone-marrow the thymus and thyroid glands are probably the ones. They are the organs of the nucleated white blood cells which contain larger and more numerous nuclei than any other tissue in the body. It is, Dr. Vaughn believes, the nuclei that is effective. He has tried to prepare this substance in its active form from compressed yeast and from brewers' yeast, but finally succeeded by using pure cultures of yeast.

Dr. Vaughn has demonstrated the truth of his theory by experiment. Yeast nuclein has marked germicidal effects. Five cubic centimetres of salt solution innoculated with the staphylococcus pyogenes aureus was found to contain many germs, but after two hours they were all dead. Experiments on guinea-pigs (with control animals) showed that tuberculous sputum was rendered innocuous. A 1 to 2,700 solution destroyed germs. The solutions keep well, and proteid materials are preserved by a minute quantity of nuclein.

Dr. Vaughn seems to have discovered an internal antiseptic which will kill germs without injuring patients. There is no chemical substance that will do this. The nuclein therapy does not call for minute doses. We may hope for great results, but if this fails we must seek further in a like direction.

Dr. David Cerno and Dr. Cronyan, of Buffalo, discussed this paper.

The third paper was read by Dr. Mendezabal, of Orizaba, Mexico, on "Paludal Fever in Orizaba." This was a complete exposition of the subject and occupied the latter half of the session.

SECOND DAY, WEDNESDAY, SEPTEMBER 6.

AN OUTBREAK OF TYPHOID FEVER PRESENTING UNUSUAL FEATURES. —Paper by Dr. William C. Dabney, of Virginia. This paper was based on a study of fourteen cases of continued fever occurring at the University of Virginia between January 15 and April 1, 1893. The epidemic, or outbreak, presented the following features of interest: 1. There had been no typhoid fever in or around the University, so far as I could learn, for several months. 2. Between the middle of January and the first of April, 1893, there occurred fourteen cases of continued fever among persons living or employed on the university grounds. 3. The persons who had this continued fever had rooms at widely separated parts of the university grounds, but all took their meals at the same hotel. 4. The water supply of this hotel was the same as that of the other hotels and of other parts of the university, and the sanitary condition of the building was good. 5. A part of the milk supplywas obtained from cows whose teats had been washed in water contaminated by sewage and probably infected with typhoid fever germs. It was in evidence also that at least five of the fourteen persons used milk at every meal. 6. Of the fourteen cases of continued fever, five presented the typical features of typhoid; seven were typical in character; and of the other two I cannot speak with certainty, as they were not under my care and I could get no satisfactory history of the cases.

This paper was discussed by Dr. Ashton, of Dallas, Texas, who confirmed the views expressed by the author.

Dr. Claiborne, of Virginia, said that he found the diagnosis between typhoid and malarial fever difficult. He is in the habit of testing such cases by giving quinine, gr. xx., three times a day.

Dr. Larabee, of Kentucky, reported thirty-seven cases of typhoid due to washing milk-cans with sewage-infected water. He agreed with Dr. Claiborne in the diagnosis by quinine. He considered the term "typho-malaria" a disastrous error. He believes that the intestinal lesion will be found in all atypical cases of typhoid. When diagnosis has once been established, the sooner quinine is abandoned the better.

Dr. Cohen, of Pennsylvania, asked why mixed infection was not possible. He also stated that atypical cases of typhoid were very common in Philadelphia. He uses quinine hypodermatically to establish the diagnosis.

Dr. Leighton, of Brooklyn, N. Y., reiterated the opinion of Dr. Claiborne.

Dr. Sibney, of Pennsylvania, reported forty cases in an orphan asylum.

Dr. West, of Galveston, Texas, said: "The 'typhoid' condition so called, has led to confusion because it is not found in most cases of typhoid." He believed quinine a reliable test drug to eliminate the diagnosis of malaria. He had never seen a true case of mixed infection. He believed they do occur, but are very rare.

Dr. Wilcox, of South Carolina, said that he had used quinine hypodermatically for diagnosis.

Dr. Andus, of Pennsylvania, agreed with the latter.

Dr. Parsell, of Illinois, emphasized the importance of treating doubtful cases with great caution, as perforation is liable to occur.

Dr. Vaughn, the chairman, said that typho-malarial fever had never been demonstrated by examination of the blood for malarial germs and the finding of the lesions of typhoid fever in the intestines. There are three theories of typhoid—1. As due to a single germ and no other. 2. That it is a modified form of the bacillus communis coli which sets it up. This is the French theory, and so it is possible for any fecal infected water to cause it. 3. Dr. Vaughn's own theory: it may be caused by any one of a number of germs, which differ—hence the different types. In an experience of many thousand cases he had never seen a typical case of typhoid as described in the text books. He had never found the typical German germ. In a recent outbreak he had found a similar germ in the drinking water and in the spleens of the victims, but the germ was not the typical typhoid germ as described by the Germans. He believed that typhoid might be due to many different germs. It is a mistake to try to divide diseases by too sharp lines.

Most of us under ordinary circumstances are immune from typhoid. He believed that a healthy person might carry the infection without himself developing the disease.

Dr. Dabney closed the discussion.

A Contribution to the Clinical Study of Prolonged Remittent Fever.—The second paper with this title was read by Dr. David Lobo, of Caracas, Venezuela. He said that it was his purpose to describe a certain form of malarial infection, which, he believed, has received very little attention from standard writers on tropical diseases. The description was based on clinics exclusively, referred to the various individual conditions, and was intended to impart his personal views in regard to the malady as it occurs at Caracas. The normal type of malarial fever, the intermittent form, is rarely met with in said city, and its presence, when noticed, can generally be traced to an original exception at some of the genuine sources of the infection. Close examination will seldom succeed in detecting any marked congestion of the liver and spleen in cases developing within the bounds of the city. This congestion cannot, therefore, be regarded as a characteristic manifestation of the fever under consideration. The aspect and extraordinary course of the pyrexia are probably due to corresponding variations in the power and quality of Laveran's corpuscles, to over-poisoning of the blood, or to some distinct element operating simultaneously with the paludal germ. Investigations in this direction have not as yet been made.

Temperature.—Variations in temperature do not respond to any fixed law of recurrence. It generally ranges from 3 .5° to 40.5° C., and drops or rises unexpectedly. Remissions take place at any moment of the day. Intermissions may recur, but they never should be trusted. Chills and sweating may be observed, but never as definite stages of the fever.

Special Symptoms.—Circulation and respiration do not exhibit any deviations, except those induced by the reaction of the organism under the influence of abnormal heat. Divergencies between pulse or respiration and temperature should be looked to and carefully treated. Digestion: Appetite either very poor or absent. Tongue smooth, clean and moist. Bowels generally act well, but diarrhœa or constipation is sometimes present. Intense abdominal pain, meteorism, profuse diarrhœa and obstinate constipation are indicative of some complication located in the intestines. Vomiting may occur, but it is never distressing. Urine offers no change worth mentioning. The excretion of albumin or blood is never observed. Liver and spleen: In respect to these organs reference is made to the preliminary considerations contained in this abstract. But he desired to lay particular stress on the fact that the spleen is seldom enlarged or congested in long remittent fever. Nervous system: Headache and vertigo are not common symptoms. Delirium is never present. There is no impairment of sensibility and mobility.

Course, Duration.—The fever frequently runs its entire course free from complications. There are serious incidents generally; their gravity depends on the importance of the organ attacked. Defervescence takes place, either gradually or by crisis. The former process is more common. As regards duration, remittent fever is not governed by any cyclic law, as typhoid or yellow fever are wont to be. The briefest term ranges from fifteen to twenty days; the longest extends to three months, seldom more. The average duration can be estimated at thirty-five days. It is obvious, from the preceding description, that the whole clinical history of the disease may be condensed into two prominent facts, viz., an irregular temperature and a long, weary course.

Diagnosis.—The main points by which long remittent fever can be discriminated from other malarial forms, are its uncommon course, its irregular temperature, the absence of marked stages and of hepatic or splenic troubles, and its resistance to quinine. Between it and typhoid, there is no possible confusion; typhoid is cyclic in its career, is accompanied by intestinal lesions, presents peculiar eruptions, and is extremely rare at Caracas. The so-called typho-malarial fever exhibits typhoid symptoms, which are never present in ordinary remittent. Vomitting of black matter and albuminuria are perfectly distinctive of yellow fever. The course of this never exceeds ten days. Pernicious fevers are sufficiently distinguished by their short duration and characteristic aspect.

Prognosis.—Where complicating or intercurring processes do not occur, a fatal issue is seldom to be feared. High temperature, extreme weakness, frequent vomitting, copious sweating and diarrhœa generally impart a serious character to the disease. Prognosis is entirely different when we have to deal with organic complications. In order of gravity, celebral disorders rank first, and are followed by pulmonary congestion, entero-colitis with watery discharges, intestinal ulceration and peritonitis. Congestion of the liver recedes under proper treatment. Measles, as an accident, occurred in one of my cases; this is the only intercurring disease I have ever observed.

Complications.—The fever may give rise to a special inflammation of the lung, to which the term pseudo-pneumonia can be properly assigned. Crepitant râles are seldom heard. Tube respiration is an early sign. Sputa are viscid, scanty, and bloody, but seldom rusty. Pain is generally absent. The seat of the fluxion is subject to frequent change. The pleuræ are sometimes included in the process. Among nervous complications, none is so terrible as cerebral congestion. It may assume a convulsive or a comatose form, but the latter is more common. The convulsive form is probably due to meningeal congestion. The issue is fatal in nine cases out of ten. Encephalitis, localized lesions, and spinal derangements I have never seen to complicate the fever. Hepatic congestion is also a possible occurrence, but it is not necessarily connected with the disease. It yields speedily to remedial agents. Abscess of the liver is very rare.

Acute entero-colitis, dysentery and choleriform diarrhœa are fearful complications, as they often lead to fatal results. Hemorrhage and acute peritonitis are apt to occur as secondary phenomena, subsequently to ulceration of the digestive tract.

Treatment.—These cases are slowly influenced by quinine. Warburg's tincture is a valuable remedy. Cold baths or lotions to lower the temperature and a generous diet are indicated.

AFTERNOON SESSION.

In the afternoon Dr. Osler opened the discussion of Dr. Lobo's paper. The belief is now universal that there exist in all types certain organisms, the plasmodia. They are diagnostic. We lack the evidence of culture outside of the body, and of inoculation.

Dr. Osler said that he would not like to criticise Dr. Lobo's paper without experience in his country, but that in the absence of blood studies he would not feel certain that he might not have met with cases of typhoid fever. Dr. Osler said Dr. Resquez emphasized the value of blood pigment in diagnosis, but this is present in very small amounts in some very severe cases.

Dr. W. A. Thayer, of Baltimore, said that the common type of malaria in Baltimore was quotidian, though the tertian type was frequent. The tertian type is characterized by an organism the same as in other countries, an amœboid body which undergoes the changes which have been so often described. Segmentation of the organism always precedes a paroxysm. The flagellate bodies are sometimes seen. The quartian organism is like the tertian, but breaks into fewer segments. The organism in the fall type is entirely different. It has a ring-like appearance and is smaller than the others, and has very few, or even no, pigment bodies. The segmenting bodies are not seen. The pigmented crescent is the most characteristic organism of the fall type of intermittent. They do not usually appear till after ten days. They do not appear in the tertian or quartian form.

Dr. Lobo said that the clinical appearance of his cases was so different from typhoid that he was positive that they were not cases of typhoid. He did not think that any comparison was possible. Typhoid was almost absent in Caracas. He had seen typhoid cases there, but very few.

VASO-MOTOR ATAXIA.—The first paper of the afternoon session was read by Dr. Solis Cohen, of Philadelphia, on this subject. He said many persons exposed to cold and wet will develop many different forms of disease. This is called idiosyncrasy. He called attention to a circulatory idiosyncrasy. He called it vaso-motor ataxia, because either paresis or spasm might be present. The most striking instances are seen in peripheral vessels. The cause is central. Graves's disease and Raynaud's disease are familiar.

He made the following points: 1. By the term vaso-motor ataxia, it is proposed to designate the condition of inability of the mechanism of circulation present in certain persons, and characterized by abnormal readiness of disturbance, with tardiness of restoration of the equilibrium of the cardio-vascular apparatus. The manifestations are most strikingly displayed in the terminal vessels, and occur chiefly under the action of external influences, especially cold; of toxic agents; and of emotion. The stimulus may be applied centrally or peripherally, but in each case the resulting phenomena indicate a defect of central inhibition.

2. Vaso-motor ataxia is in many cases congenital; in some inherited; the condition is not rarely present in several members of a family.

3. In some cases the phenomena are of paretic, in others of spasmodic, character. Usually the two kinds of phenomena are displayed in varying degree in the same patient. Whether spasmodic or paretic the symptoms are suggestive of inco-ordination.

4. In exophthalmic goitre, especially such cases as are produced by emotion, or are markedly intermittent, is found the extreme type of the paretic variety of vaso-motor ataxia.

5. The form of Raynaud's disease known as "local syncope," furnishes an extreme type of the spasmodic variety; while "local asphyxia" exhibits spasmodic and paretic phenomena.

6. Between these extremes are numberless gradations, down to the slightest departure from normality; while even the extreme symptom groups represent merely exaggerations of phenomena that under certain conditions occur in normal individuals.

7. Dermographism is an essential feature of vaso-motor ataxia, and in most cases factitious uticaria can be readily produced by cold or by pressure, or by both; mottlings of the skin, certain peculiar markings of the nails, teleangiectases and stigmata are common.

8. There is usually a hemorrhagic tendency, as shown by ecchymoses, petechiæ, epistaxis, hæmoptysis, hæmatemesis, hæmaturia, and retinal hemorrhage.

9. Even in the absence of hæmaturia, red blood cells are often found in the urine; uric acid, urates and oxalates are likewise common; the presence of albumin, tubecasts and cylindroids is less common, and is usually intermittent. Glycosuria has been observed.

10. In many striking cases there has appeared to be morbid alteration of the thyroid gland.

11. The action of the heart is usually rapid, irregular and easily disturbed. Palpitation is common, and in some cases intermittent tachycardia has been noticed. Hæmic and functional murmurs are not uncommon.

12 Among other symptoms and morbid associations observed are drug idiosyncrasies, urticaria, local œdema, angina pectoris and pseudo angina, hyperidrosis, asthma, hay fever, vertigo, migraine and other forms of headache, transient hemiopia and other visual disturbances, persistent mydriasis, astigmatism, myopia, hyperopia, menstrual irregularities, intermittent polyuria, rheumatism, chorea, epilepsy, neurasthenia, gastralgia, enteralgia and membraneous enteritis, most of which are doubtless related as effects of a common cause, or as secondary results.

13. The development of pulmonary tuberculosis in some cases is probably a sequence of vascular and trophic disturbance in the lung.

Dr. H. A. West opened the discussion. He said that the vasomotor ataxia as described by Dr. Cohen would explain many phenomena observed by the general practitioner.

He said that it threw light on many of his own cases, which he had not previously understood. He considered the name exceedingly happy.

Dr. Carmona Y. Valle, of Venezuela, spoke of the importance of this subject to the proper understanding of many cases.

THE COURSE, RESULTS AND COMPLICATIONS OF ERYSIPELAS.—Dr. J. M. Anders, of Pennsylvania, read the paper.

The author gave elaborate statistics to prove that debilitating diseases predispose to the disease. Complications are common, but acute articular rheumatism is noticeably so. It is only exceeded in frequency by abscess as a complication.

Dr. J. Cronyan, of Buffalo, N. Y., reported a case of progressive locomotor ataxia which recovered after having an attack of erysipelas. He said that he had no doubt of the antagonism of erysipelas to certain other diseases.

Dr. Desaussure, of Charleston, S. C., asked if the abscesses were in the cellular tissue or were they in the lymphatic glands.

Dr. Anders closed the discussion.

SECTION IN LARYNGOLOGY AND RHINOLOGY.

FIRST DAY, TUESDAY, SEPTEMBER 5.

E. FLETCHER INGALLS, M.D., of Chicago, President, in the chair
English Secretary, T. MURRAY, M.D., of Washington, D.C.;
Spanish Secretary, ANGEL GAVINO, M.D., of City of Mexico.

The chairman, in opening the section, commented upon the large amount of work which American laryngologists had been called upon to do at the various societies during the last few months, and upon the growth of this specialty in the United States, where there were now probably five hundred men fairly competent to treat nose and throat lesions. He believed that the building of the pan-American railroad would do much to develop certain of the southern countries as climatic resorts during the winter months.

THE TREATMENT OF CERTAIN CASES OF CHRONIC LARYNGITIS was the title of a paper presented by Dr. Angel Garvino, of the city of Mexico. He alluded to those cases in which symptoms persisted, though the objective examination revealed nothing abnormal, and where no tuberculosis would be suspected. He makes it a routine practice to examine the secretions of the larynx in every case, and when the mucous membrane is apparently normal he scrapes it and examines the scrapings. In both secretions and scrapings he has found the tubercle bacillus.

The regions thus operated upon have been arytenoids, false cords, ventricular bands and epiglottis.

For treatment, he recommended the use of intra-laryngeal injections of some oily menstruum impregnated with creosote, salol, or salicylate of bismuth. He also employed bichloride and zinc applications and gave creosote internally.

SECOND DAY, WEDNESDAY, SEPTEMBER 25—MORNING SESSION.

Dr. A. W. de Rhoaldes, of New Orleans, read a paper on "An Improved Motor Dynamo and Electrical Cabinet for the Adaptation of the Street Current to Office Work."

The paper was a highly technical description of a new apparatus he had devised, and was illustrated with diagrams.

THE EASIEST AND MOST PRACTICAL MEANS OF MAKING GALVANO-CAUTERIZATION, ESPECIALLY TO TURBINATE HYPERTROPHIES.—The paper was read by Dr. Arthur G. Hobbs, of Atlanta, Ga., and consisted of a description of a small apparatus, contained in a rosewood box, eight inches long, four inches wide and four inches deep, and is secured to the wall at a convenient distance from the operator's chair. The wires from an alternating current of fifty-two volts, the most generally used circuit, particularly in the medium and smaller-sized cities, are brought into the operating-room from the street, and attached to one end of this little box. The conducting wires are similarly attached to the other end. The apparatus is now ready for the cautery operation, and, more than this, it remains always and ever ready, in no way requiring the attention of the operator, at any time. When the proper cautery point is attached, through the handle of the conducting wire, it is necessary only to turn a screw projecting from the nearer service, with the left hand, to use any number of volts, or to raise the cautery point to any degree of heat desired. In short, the little apparatus is simply a gauge for measuring out the exact quantity of electro motor force in the form of heat that may be needed for each particular case. The needle and a very narrow blade are the only cautery points ever used, and in all cases they are made to enter at the most prominent point of the hypertrophied tissue, penetrate to the bone when a heat is reached, then withdrawn through the same puncture while the point is still hot. In no case is a wholesale destruction of mucous membrane ever produced by applying the flat surface of a blade to the protruding part.

Discussion by Dr. D. Bryson Delavan, of New York City.

"SOME OF THE THROAT CONDITIONS OBSERVED IN GOUTY SUBJECTS" was the title of a paper read by Dr. Solomon Solis-Cohen, of Philadelphia, of which the following is an abstract:

The term "gouty subjects," as used in this paper, applies not only to those who have had attacks of acute gout, or those who exhibit the characteristic deposits of chronic gout, but also to the much larger number who suffer with the varied and often obscure symptoms of "lithæmia," with a more or less constant tendency to excess of oxalates, phosphates, urates and uric acid in the urine. In both classes of patients the upper air-passages are frequently affected; and while the gou y diathesis cannot be affirmed to be the sole cause of the local manifestations, it doubtless acts both as a predisposing and modifying influence. A large number of cases by different observers would have to be recorded in detail and carefully analyzed, before characteristic signs of throat gout could be laid down. In most, if not in all, cases the condition is a chronic one, with a tendency to paroxysmal exacerbation. Inflammation is not a necessary feature of the case. In the author's experience the most prominent symptoms are sensory. Pain and abnormal sensations are referred to various areas apparently healthy.

Sometimes during a paroxysm these spots show a junction of dilated vessels. There may be a dusky discoloration of the mucous membrane; or an enlarged and reddened follicle. The epiglottis and arytenoid summits are, in the larynx, the favorite seats of abnormal sensation. In some instances we have a diffuse laryngitis, with a "corned beef" appearance. In the pharynx the tonsillar and peritonsillar structures and the angles of junction of the postero-lateral walls, have seemed to be most frequently affected. Luschka's tonsil may be reddened and tumefied when the rhino pharynx is invaded. Tubal catarrh and gouty changes in the drum membrane may cause subjective noises and peculiar sensations in the ear.

In young patients, the pharynx and larynx are often covered with a grayish tenacious mucus ; in those past middle life the pharyngeal membrane is more often dry and pale, exhibiting a network of enlarged and tortuous vessels, or mottled with livid patches. Spasmodic obstruction to nasal respiration, with or without accompanying coryza, spasmodic choking in swallowing, and spasmodic obstruction to voice and to laryngeal or bronchial respiration, have been observed in a few cases. The diagnosis depends on urinalysis and associated symptoms of gout or lithæmia. Local treatment must be of the mildest character, and is palliative only ; for permanent relief of greater or less degree, dependence must be placed on dietetic, hygienic and medicinal measures appropriate to the gouty state.

Discussion by Drs. J. E. Logan, of Kansas City, Mo., and John H Lohman, of Cleveland, O.

Dr. D. Bryson Delavan, of New York, exhibited an electric lamp for giving illumination for office work in nose and throat disease.

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CLINICAL LECTURES.

TREATMENT OF CHRONIC SUPPURATION OF THE MIDDLE EAR.

Delivered in Vienna on June 28, 1893. By Professor ADAM POLITZER.

The treatment of chronic suppuration of the middle ear is first of all determined by the local changes in the auditory apparatus. It will vary accordingly as we find the discharge associated only with swelling of the mucous membrane or with granulations, polypi or cholesteatomata. Remedial measures will depend on the quality and quantity of the secretion, the situation and size of the perforation in the membrane, the local changes consequent on the suppuration, and on the previous state of health of the general organism. Assisted by the determination of these points we direct our treatment so as to bring about a cessation of the discharge and a removal of inflammatory products in the middle ear. One of the chief conditions for the healing of a chronic otorrhœa is the thorough removal of secretion from the tympanum. This is of great importance, because the pus lodges in the irregular loculi of the middle ear, and from the ready admission of air it exposes the patient to sepsis, with consequent ulceration of the mucous membrane, bones etc. In begining the treatment of a chronic discharge from the tympanum it is advisable to examine the quality of the discharge. A pledget of absorbent cotton wool, if introduced as far as the perforated drum, will bring away some pus which may be examined microscopically for the different micro-organisms. Of these the streptococcus gives the worst prognosis. If the pus has a very bad odor, we can judge from that as to the intensity of the decomposition. The next step in examination and treatment is to remove as much as possible of the septic discharge lying in the loculi of the tympanic cavity. We do this by inflation through the Eustachian tube, so as to drive the contents of the tympanum into the meatus externus. Should air fail to pass through the Eustachian tube, the catheter can be used, and, if necessary, the contents of the tympanum may be aspirated with Siegle's instrument. The ear is now syringed with an antiseptic liquid, which may vary in strengch according to the degree of fetor of the discharge. The lotion generally employed in my clinic is one made by adding from ten to fifteen drops of lysol to a quarter of a litre of boiled water; but we can also use carbolic lotion (2 per cent.), resorcin from 1 to 2 per cent.), or salol (1 per cent.). If a still stronger antiseptic is required, we use corrosive sublimate in the proportion of 1 in 2,000. The following points must be carefully borne in mind with regard to the employment of this medicament: (1) never to use it in the case of children; (2) or, when the Eustachian tube is very patent, as it might then run into the pharynx and be unconsciously swallowed in small, but frequently repeated doses; and (3), discontinue its use at the end of a week, or sooner, if all smell has disappeared. If required, it can be resumed after a few days' intermission. We next dry the ear thoroughly and continue the steps of our antiseptic treatment. If there are no granulations on the perforated membrane or inner wall of the tympanum, I generally insufflate finely powdered boracic acid. Any superabundant powder can be got rid of by a puff of air from the bag into the meatus. I have never seen any bad results due to caking of the boracic acid, but it is well in any case not to leave more than a fine coating. This plan of dressing is repeated according to the quantity of discharge; but generally once a day is sufficient. A plug of cotton wool may be worn in the ears when the patient is out of doors. As soon as we find the boracic acid remains dry, the ear is not interfered with for fourteen days, and then, if necessary, the same plan of treatment is recommenced. If boracic acid is used without success, iodoform is employed, its disagreeable odor being disguised with Tonga bean. An objection to iodoform, especially in private practice, is that some of the powder may easily fall on the clothes and be disagreeable on account of its smell. This can be avoided by having small bougies made of iodoform with gum Arabic, glycerine and tincture of Tonga. These are about as thick as an Eustachian catheter; a small piece—

about a quarter of an inch—is broken off, introduced as far as the drum with the forceps and kept in place with a plug of cotton wool. It will not obstruct the flow of pus, and will maintain a supply of antiseptic material as its surface mixes and melts in the discharge. Instead of iodoform, iodol is sometimes used, which has the advantage of being free from smell. Alcohol can also be used for dropping into the ear, either in a pure state or mixed with salol, iodol, resorcin or boracic acid, all in the proportion of 1 in 20. Lotions of salicylic acid may be used of the strength of 1 in 1,000. Hydrogen peroxide has been much used by our American *confrères.* It forms bubbles of gas in the depths of the tympanum, and thus it is useful in bringing out the secretion from deep parts, but it is otherwise of little value.

Even when a perforation does not close, suppuration may completely cease and may remain absent for months or years. It generally ceases in summer, and when it returns it is more apt to do so in autumn or winter. The recurrence is generally due to naso-pharyngeal catarrh from cold, damp, fog, etc., or to the entrance of water into the ear when bathing or washing. Certain prophylactic directions should be given to all patients who have had an otorrhœa, and who are left with an incomplete membrane. They should never carry cotton wool in their ears when indoors or when it is fine out of doors, but the affected organ should be protected with a light pledget when going out in windy or cold weather. No water should be allowed to enter the meatus. Even in health it is quite unnecessary for purposes of cleanliness, and only tends to the accumulation of cerumen. In bathing the ear must first be blocked with cotton wool impregnated with vaseline, and sea bathers should also wear a mackintosh cap to cover the ears and to protect them from the waves. The patient should not, as swimmers are apt to do, take water into the mouth and blow it out through the nostrils.

When a relapse occurs in a quiescent case of chronic middle-ear suppuration, we should give a guarded prognosis at first, for this recurrence may be due to ulceration or caries, or some new development which remains obscure until the discharge is controlled. Suppuration may cease with complete cicatrisation of the perforated drum-head. Less favorable, naturally, are those cases where the perforation persists. In a number of the latter cases the mucous membrane of the tympanum remains almost normal; in others the cavity becomes lined with epithelium, which grows inwards from the external meatus over the margins of the perforation. This exposes the patient to the risk of the formation of cholesteatomata and, as I have previously explained, when these form in the typanum, they may be the origin of very dangerous symptoms. In fact, every patient with a deficient membrana tympanum should present himself for observation from every three to six months. One cannot prevent the epithelium of the external meatus from growing through the perforation into the tympanum and so conducing to the formation of these masses. The best treatment for the prevention of cholesteatoma is the use of pure alcohol from time to time and syringing out at once any newly formed epithelial masses with an antiseptic lotion. I generally use the very purest spirit of wine, to which boracic acid has been added in the proportion of 5 per cent. A teaspoon having been warmed by immersion in hot water, twenty drops of boracic alcohol are placed in it and are then poured into the ear and left there for half an hour. Sometimes the alcohol causes considerable smarting and pain ; we relieve this at once by blowing air into the ear from the bag, or from the mouth if no bag is at hand. If, however, the masses of cholesteatomata have already formed, we must soften them by using glycerine and bicarbonate of soda and then wash them out. Cases which do not yield to this anteseptic treatment require the employment of astringents: the one chiefly used is nitrate of silver. The indications are extensive destruction of the drum-head, with swelling and thickening of the tympanic mucous membrane ; this latter point can be tested with a probe. We first syringe out the ear with an antiseptic solution ; we then take a 10 per cent. solution of nitrate of silver and from a warmed glass spoon pour in from ten to twenty drops, leaving them in the ear for from ten to fifteen minutes. If pain results, we leave the lotion in the ear for a shorter period and immediately syringe it out with pure, tepid water. A solution of common salt has been recommended in order to neutralise the nitrate, but I am strongly opposed to this, as the resulting clots of chloride of silver form insoluble deposits and act like foreign bodies within the tympanum. This treatment leaves a white coating on the exposed mucous membrane, and we therefore wait for one or two days until this clears off and then we repeat the process. Four or five applications are generally enough, and sometimes it is advantageous to return to the boracic powder treatment or to alternate the two methods. I again insist on the point that this treatment is contraindicated in small perforations. Formerly, astringents, such as the salts of zinc, lead, copper, etc., were much used, but their employment has been discontinued, as they all form insoluble albuminates which cannot be brought away. The only one still used is "aluminia acetica," either pure or mixed with water in the proportion of 50 per cent. In all these methods it is well to vary the treatment, as the mucous membrane becomes habituated to any one remedy ; thus for instance, it sometimes answers to use the boracic acid treatment for several days and then to alternate the iodoform for the same period. If there are any granulations in the tympanic cavity or on the remains of the membrane, they should be cocainised and touched with liquor ferri perchloridi, or they may be treated by the use of alcohol, of which half a teaspoonful is poured into the ear and left there for a quarter of an hour. Sometimes a quicker result may be obtained by combining these two methods—touching the granulations one day and using alcohol the next. Larger granulations can be curetted.

In certain cases, the suppuration in the tympanum is maintained by a stricture in the external meatus. This is often bony and cannot be relieved; our efforts must then be more strenuously directed to clearing and disinfecting the cavity behind the stricture, so as to prevent sepsis and its dangerous consequences. This may be done by the use of a fine elastic tube attached to the syringe and passed within the constricted part of the meatus; or the tympanum may be washed out through the catheter inserted into the Eustachian tube. If we find that the lotion does not pass freely through the cavity and out through the meatus externus, we employ a fine elastic tube (*Paukenrhröchen*), which is passed right through the Eustachian catheter and up into the tympanum. In this way, the cavity can be thoroughly syringed out, as will be seen by the turbid fluid issuing through the constricted meatus externus. The soft, threadlike tube which I use for passing through the Eustachian catheter into the tympanum is one that was designed by Weber Liel. He employed it for removing mucous from the tympanum by suction through the Eustachian tube, in cases of simple middle-ear catarrh, without perforation. This use for it has been quite abandoned, but it is very useful in the plan of treatment that I have described for middle-ear suppuration. In this way I have sometimes cured in four days a discharge that had persisted for two years. The fluids employed are sterilized water, 1 per cent. salt and water, or 1 to 2 per cent. boracic or resorcin lotion. In cases of perforation through Shrapnell's membrane from suppuration in the external attic, or cavity of Prussak, the finely pointed rubber or metal cannula invented by Hartmann is used, or the pliable ones I have proposed. After syringing with an antiseptic, the cavity is dried by blowing in air through the same cannula, and, if required, the insufflator of the same form for throwing in a very fine layer of boracic acid can be employed.

Aspiration of pus through the Eutachian tube is of no value, because under the diminished pressure the walls fall together and prevent the exit of any material; but this method is most useful when directed through the meatus externus, as we can draw pus from parts where neither inflation nor syringing could dislodge it. We should always do it in cases where the air douche drives out some pus, and yet, on inspection, it can be seen that more matter remains behind. In aspirating (with Siegle's instrument) we should look to see from what point the pus comes. The value of this method is shown when we apply it to a dissected part, where a full view of its action is attainable. We then see that it will draw fluid even from the recesses of the mastoid antrum. Its value is more marked in cases where the cavity of the tympanum is divided into loculi by bands of inflammatory formation, when inflation and syringing would fail to dislodge the matter.

It is impossible to describe the exact method of action of the remedies employed. We only know that many remedies—especially alcohol and powders—withdraw water from diseased tissues, and that others have a caustic action, and set up strong reaction and speedy alteration in the circulation and nourishment of the mucous membrane; further, that the chemical and mechanical irritation caused by certain agents sets up a disintegration and reabsorption of round-celled infiltration; and, finally, that the antiseptic treatment prevents putridity and decomposition and exercises a good influence (through its germicidal property) on the progress of the suppurative process. In conclusion, I must touch on the operative treatment which may be required. If the perforation is very small, it may be necessary to enlarge it. When two small perforations exist, it may be advisable to unite them into one. The extraction of the ossicles, in my opinion, should only be performed when they are carious or when the membrane is destroyed and they are of no more use. After cessation of discharge, operations may be required for the consequent adhesions—a subject which cannot be included in the present lecture.—*Lancet.*

DYSMENORRHŒA—CHRONIC ENDOMETRITIS—THE USE OF THE CURETTE.

By W. Gill Wylie, M. D., Professor of Gynecology at the N. Y. Polyclinic, Visiting Gynecologist to Bellevue Hospital, etc.

Gentlemen: The patient I show you to-day is thirty years of age and has had a large number of miscarriages, the last one occurring ten months ago. She menstruates regularly, and the flow lasts four days. She has pains in the pelvic region, a feeling of soreness at the menstrual period, and a profuse purulent leucorrhœa. She has also a retroversion of the uterus.

Speaking of retroversion in this connection, I wish to remark that an impression prevails with a great many gynecologists that if you restore the displaced uterus, you will cure the patient of all her symptoms. This, to my mind, is an erroneous view to take, for I have given no little attention to the subject of displacement, and I have found, by practical experience, that if you cure the diseased condition of the uterus the displacement matters but little, and many of the symptoms attributed to displacements have nothing whatever to do with them. Displacements simply complicate disease and may give rise to pain, the pain, however, being due less to the displacement than to other conditions.

Now, take the case of a woman in whom the uterus is in the normal position in the pelvis, but the broad ligaments are thickened and the tubes and ovaries diseased. Such a woman will suffer when she assumes the erect position, though there is no displacement, because the uterus is fixed. Every time she breathes, every time the bowels move or the diaphragm contracts, downward pressure is exerted upon the pelvic contents, pressing on the fixed uterus and diseased ovaries, causing pain. Where the uterus is healthy, displacement causes little inconvenience.

I do not wish you to leave with the impression that I do not recognize the fact that retroversion does complicate disease; but I know there are men who have made much use of pessaries, yet if they spoke their mind with freedom would have to admit that they have done more harm than good with them.

When I began to be a disbeliever in the displacement theory, about fifteen years ago, I admit I was in doubt what to do. I found I could easily do away with the use of pessaries, but I did not know exactly what to substitute. I am not in that doubt to-day. I am just as clear as to the proper way to treat uterine diseases in minor operations as I will ever be. The first thing is to make a complete diagnosis, then, if the uterus is displaced, not only sustain it in its normal position, but dilate it, and treat the interior, if diseased, making a distinction, of course, between cases complicated by salpingitis and those not so complicated. If the patient has disease of the tubes and ovaries, if she be confined to bed, or threatened with peritonitis, the only thing to do is to open the abdomen and remove the diseased tubes and ovaries. We cannot scrape, or drain, or treat in the ordinary way disease of the Fallopian tubes. We cannot reach the seat of disease except by laparotomy.

Now, to give you the treatment in a few words, I will say, if a patient comes to you, try to make a complete diagnosis, if you can. If you are able to exclude disease of the tubes and ovaries, use boroglyceride pledgets twice a week, between the menstrual periods, and do nothing else. If the uterus is enlarged, and remains so after boroglyceride treatment and improved pelvic circulation, or if the introduction of the sound causes bleeding or pain, then divulse, scrape, drain and make a simple application. Never use anything calculated to destroy the mucous lining of the uterus, for you must bear in mind that the uterus is filled with deep seated glands and follicles, so that any escharotic which may destroy the mucous membrane will leave a scar and do more harm than good in after-life.

By adopting this plan of treatment in chronically diseased conditions of the uterus, you will secure, in every instance, results that will prove satisfactory to you and beneficial to your patient.

The next patient has a chronic endometritis following a septic infection, whether due to a miscarriage or curetting I cannot say. As the uterus is movable, the treatment consists in the use of boroglyceride tampons for a little time to soften the uterus, and then dilate, curette and drain it. In other words, give her the routine treatment of chronic endometritis until you have eliminated all signs of disease outside the uterus.

I wish to say a few words in this connection about curetting. This procedure has been very much misunderstood by the profession. The ground was first taken by some that if ever there was an instrument inspired by the devil, the curette was that instrument. It met with a warm reception, however, and was extensively used and produced good results, and then the opposition had to hedge somewhat. Then was given birth that abortion styled the copper or wire curette.

Now, I have claimed that the copper curette is of no use where you have a better instrument. It is a well known fact in surgery that it is not always the amount of injury inflicted in a surgical procedure that does the harm—that is, you can scrape the uterus throughout its entire extent, and if everything is clean you will not have any bad result. If you scratch the uterus so as to break the mucous membrane and insert poison with a dirty instrument, your patient may develop sepsis and die. So when I have a uterus to curette, I want an instrument I can curette with.

Now, this curette which I show you is a scraping instrument and not a cutting one, and the man who says he can scrape the uterus with a copper wire instrument will never, in my opinion, grow to become a first-class surgeon. The result from the use of the wire instrument is that it turns up the granulations and practically leaves them behind in the uterus, leaving a better septic nidus when there was no dilatation than before. With this instrument, the sharp curette, you do not cut the uterus, you do not gouge out a piece of the uterine tissue, you simply remove the diseased structure, and the moment you strike granulation tissue you can recognize it at once, as it imparts to the touch the feeling of a wet glove.

I do not, however, advocate the use of a curette soon after labor. The first thing I do after labor in a septic case, is to wash out the uterus, and if necessary give the patient something to make the tissues firm. After I have used hot water and contracted the uterus firmly, I use a forceps, blunt and rounded, introduce it and catch hold firmly of anything I find in the uterine cavity, and bring it out. You must be careful not to catch hold of the uterine wall which you are apt to do. In that way I empty the uterus.

When there is firm contraction of the uterus immediately after miscarriage, I sometimes use a curette, but if there are large pieces of tissues to be removed I do not use the curette but the forceps.

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SANITARY.

THE RATIONAL AND SANITARY DISPOSAL OF THE DEAD.[1]

By F. Seymour Haden, F.R.C.S.

The object of the present paper is:

I. To contrast burial as it is with burial as it ought to be; and again, burial as it ought to be, with cremation as a proposed substitute for it.

II. To test the validity of a statement made by Sir Henry Thompson at the late Congress of Hygiene and Demography, to the effect that "burial, by spreading infection, is a cause of increase in the zymotic death-rate."

III. To prove that, as the practice of cremation would render the rectification of any doubt which might subsequently arise as to the cause of death in any given case impossible, such a practice cannot fail to operate as a direct incentive to crime, especially to such forms of crime as are known to be difficult of detection without prolonged, and possibly repeated, methods of investigation.

I. First, then, as to *burial as it is.* Burial as it is consists in this: in the hermetic enclosure of the dead body, which, instead of being buried at once, has been kept in the house till putrefaction has set in, in a strong air-tight box or coffin (of oak it may be, or even of lead), and in disposing of these boxes one upon another till a legalized piece of ground called a cemetery has become full of them; then, in doing the same thing in another piece of ground till that also is full; then in a third till that is full; and so on, in one piece after another, till all are full—till the dead, in fact, are in permanent possession of all of them, or, as Lord Stowell pithily puts it, "till the dead have shouldered out the living." I have already said so much of this mode of burial that I need here say no more of it.

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[1] Read at the Liverpool Medical Institution, May 4, 1893.

Burial as it ought to be, again, consists in the inclosure of the body as soon after death as possible (as soon, that is to say, as the *rigor mortis*, which is a proof of death, has passed off, and before decomposition has well begun) in a coffin as perishable as itself, and which allows of its gradual disappearance without harm to anybody. For this method, or, rather, for this *principle* of burial, I am myself entirely responsible; and if this principle were well understood, as I have described it elsewhere, I need not again refer to it. It is, however, even now, so much a sealed book to many that I may perhaps be forgiven if I once more repeat what I said of it at a meeting presided over by Lord Shaftesbury many years ago:

"It is the departure from the simple conditions which should attend the act of committing a body to the earth which is the cause of all the evils that surround the subject, and which it is the aim of all I have written to mitigate, if not altogother to remove. The retention in a dwelling-house for as *long* as possible of a body which ought to be committed to the earth as *soon* as possible is the first departure of this kind. It is also the most important, because it is this departure which necessitates the strong coffin, and it is the strong, imperishable coffin, again, which prevents the resolution which it is the beneficent office of the earth to accomplish, and which, therefore, it should be the first care of the living to promote. Some curiously mistaken notions exist as to what happens to a dead body when, in the words of the old ritual, it is 'laid into the ground,' the popular notion being that it becomes a part of the clay to which it is committed. Nothing of the kind, of course, is the case. A body properly buried—buried, that is to say, in such a way that the earth may have access to it—does not even remain in the earth, but returns to the atmosphere. Let me explain. Suppose a body buried three or four feet below the surface, the earth, as earth, affects it in no way whatever. The part played by the earth in its resolution is that of a mere porous medium between it and the air which is above it. Through this medium the air, with its dews and its rain, filters, and when it reaches the body oxidizes it—that is to say, resolves it into new and harmless products; and then these new products, passing upward again through the same sieve-like medium, re-enter the atmosphere and become the elements of its renewal, and of the nourishment and growth of plants. The body, in fact, literally as well as figuratively, ascends from the dead, and fulfils the cycle of its pilgrimage by becoming again the source and renewal of life; . . . . yet it is this beautiful provision which, with our strong, imperishable coffins, we are doing our best to prevent. Another mistake, too, is to suppose that, after a time, this coffin itself decays in the earth. It does not Substances only which contain nitrogen readily decay in the earth, decay being the effort of the nitrogen to get out. But wood is a non-nitrogenous body, and does not readily decay; so that, in the Holborn Burial-ground, the coffins of Charles II.'s time were found pretty much as they were buried, and with their contents just as putrid, while the surface had been raised no less than eighteen feet by this mass of boxed-up putridity. . . The coffin, therefore, should be of the lightest material, such as pulp, now in daily use at Woking. Moreover, as the coffin is the *fons et origo mali*, it should be the first object to remodel and reform."

I hand round a representation of one of these perishable coffins· that those present may see not only what it is like, but that I do not' as a prominent member of the Cremation Society is fond of declaring, "bury in a basket." I may also state that as the patent for this coffin is out, anyone may make it, and—as its prime cost is small,—sell it for much less than the Woking Company is now doing. Before I entirely quit this subject of "burial as it ought to be," however, I cannot forbear to express my gratification that authorities so eminent as Drs. Brouardel, Du Mesnil, and Ogier, of Paris, have since fully endorsed the principle on which it rests, especially as to the action of the air as well as the earth in promoting the resolution of the buried body. I append a note of their observations to this paper: "1. If," say Messrs. Brouardel, Du Mesnil, and Ogier,[1] "when interments took place in churches, it was possible for accidents to result from the escape of putrifactive gases,—in these days, when such gases are allowed to find their way into the open air, such dangers are imaginary; while the air of the open cemetary is absolutely inodorus. 2. That the soil of cemeteries contains large quantities of carbonic acid gas only, and of other gases—contrary to the general belief—none in any appreciable quantities. 3. That the decomposition of dead bodies buried in the earth is rapid in proportion as the soil is porous. 4. That in proportion as the buried body comes into contact with the outer air, by the fact of the permeability of the soil, the shallowness of the interment, and of the porosity of the coffin, its resolution is rapid and complete. 5. That extraneous substances of every kind put into the coffin to fill it up, retard resolution.

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[1] Congress of Hygiene and Demography, London, 1981.

I now proceed to describe, as fairly as I can, what I understand by *cremation.* There are, however, I ought to say, two ways of describing it—the cremationist way, and my way. The cremationist way —I quote from a letter I have just received from a very eminent half-cremationist—is this: "Efficient cremation and efficient burial are the same processes, differing only in time. I would recognize both, notwithstanding a case of poisoning here and there, though at the same time inefficiency in the performance of either should be made an offence."[1] Then comes my way. I say that if these two things are the same in theory, they are not the same in practice. That while burial is a complete process, leaving no *residuum* behind it, cremation is an incomplete process, leaving a very positive *residuum* behind it, not to say a very embarrassing *residuum.* That while one, therefore, is an efficient and perfect process, the other is an inefficient and imperfect one, and therefore, as my distinguished friend says truly, but not I think intentionally, it ought to be "made an offence." That while, by burial, the body remains at rest till such time as its perishable parts re-enter the air, and its imperishable parts remain to form (as nature intended) an integral part of the earth's substance—by cremation it is thrust into a furnace, and, by the aid of one of those tall chimneys which we have been so long trying to get rid of, its combustible parts are poured—and that for two or three hours —into the pure air around, and its incombustible part (weighing from five to seven pounds, more or less) is returned to the mourners to take away with them! What the effect on the surrounding air would be if a dozen, or twenty, or fifty of such vomitoria were all at work at the same time, I leave to those whose fate it might be to live within half a dozen miles of them to imagine. I might, if I thought fit, write a chapter on this part of the subject alone I forbear to do so, and to satisfy those who would know more of the wonderful properties both of the earth and of the air, content myself with recommending for their perusal the many instructive papers on the subject by Dr G. Vivian Poore, and also a recent most remarkable paper on "The Nitrifying Ferments of the Soil,"[2] by Professor J. M. H. Munro—a paper which ought to be all the more convincing in that it is not advanced by its author to uphold any preconceived theory.

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[1] Lord Playfair.

[2] Jour. of Roy. Agri. Soc. 3d series, vol. ii., p. 702 (1891).

In that paper Mr. Munro tells us not only that nitrification (which is Nature's way of turning all putrescent matter to a harmless and useful account) is impossible without the intervention of the earth, but that inoculation with even minute quantities of soil is sufficient to produce it. "The quantity," indeed, "of this most important factor," he says, "present at any one time in relation to the whole mass of soil, is so nearly infinitesimal that the most scientific chemical test will barely detect it." "Sometimes," he goes on to say, "there is less than one part—often less than ten—of this nitrifying element in a million parts by weight of soil!" If I have gone out of my way to quote what is said in this most interesting paper, it is because it comes to me as a revelation of that wonderful power on the part of a thin covering of earth to prevent any appreciable odor from the presence immediately beneath its surface of a dead body, a fact at which I have always wondered, but the reason of which I could never till now understand; and also, because it furnishes a complete answer to those indiscreet and untruthful advocate of cremation who are always telling us of the pestilential vapors emitted by graveyards.

II. To test the validity of a statement made by Sir H. Thompson at the recent Congress of Hygiene and Demography, to the effect that burial is a propagator of infection and a cause of increase in the zymotic death-rate.

In entering as seriously as I can upon this the second head of this inquiry, I find myself, if I may say so, suddenly called upon to contrast what I have always believed to be the ways of Nature with the ways, opinions, and statements of Sir H. Thompson. If, as I must confess has been the case, I have hitherto believed the ways of Nature to have been for our benefit, I must now, perforce, believe that they have been to our detriment. While Nature, up to now, has assured me that the great and universal disintegrator and destroyer of all forms of death and decay is the earth, Sir H. Thompson tells me that in giving me any such assurance Nature has deceived me altogether. On the contrary, that the earth is a very hotbed of infection, and its water-springs special carriers of that infection to the living. In a word, that while Nature has been doing one thing for the supposed welfare of the whole human race, Sir H Thompson, for the purposes of the cremationist propaganda, is doing another. All that Professor Munro has told us of the wonderful nitrifying power of the earth on every form of animal decay—all that Sir John Simon and other eminent chemists have told us of its equally wonderful faculty of changing putrescent animal matter contained in water into neutral salts—all that we know of the complete cessation of cattle-plague by the prompt burial of its thousands of carcasses in shallow trenches—of the harmless resolution of hundreds of soldiers superficially buried on fields of battle—nay, even of the entire disappearance of the Great Plague itself after its victims had been cast by cartloads into pits dug for them in the open streets—all this, I say, and all that we observe every day in our heavily manured fields and gardens, we must now be prepared to give up, and at the novel dictation of the cremationist propaganda, to forget and throw to the winds! To those who now listen to me and who may not unnaturally suppose that these expressions convey something more than the circumstances warrant, I can only say that their surprise cannot equal my own when I heard for the first time from Sir H. Thompson's own lips that "burial within the earth was a propagator of infection and a cause of increase in the zymotic death-rate."

Now, there are three ways of meeting this extraordinary statement -by the evidence of experts, by the teachings of Bacteriology, and by the result of experience—each, I might almost say, sufficient in itself to refute it. I, however, at once made up my mind to avail myself for this purpose of all three, and also that I would depend by choice on my own experience of forty years first.

Every member of the profession, of which I had for so long the honor to form a part, knows that all infectious diseases divide themselves into two great groups or classes—one which derives its origin from surface soil and surface water; the other which owes its convection to actual contact of one case with another in the open air. Again, that the first of these classes is itself subdivisible into two distinct types of disease—one which depends on vegetable exhalations from marsh lands, and which includes within it all those forms of febrile disturbance known as malarial; the other which, like cholera and choleraic diarrhœa, depends on the actual introduction into the intestinal canal, by means of surface soil and surface water, of the *dejecta* of patients affected with the same disease.[1] Burial, therefore, four feet below the soil, can have nothing whatever to do with any of those forms which constitute, as I have said, the first class of infectious disease. The second, and by far the larger class, again, and which comprises small-pox, measles, whooping-cough, typhus, scarlet fever, diptheria, etc., owes its propagating power to the actual contact or close contiguity in the open air of one patient with another. That class, therefore, has no connection with either soil or water, and being wholly independent of even the surface of the earth can have even less to do with burial than the first class. To lump these two classes together, therefore, as Sir H. Thompson has done, is, to begin with, a scientific solecism of the most glaring kind, and—seeing how perfectly well known the superficial method of their propagation is—to suggest that they are spread by means of water when buried four feet below the surface is a statement which is to all appearance quite inexcusable and in the nature of a direct appeal to popular ignorance and credulity. The zymotic death-rate, in fact, has nothing whatever to do with burial, only two out of the seven diseases which comprise it having ever been shown to depend in any way whatever either on soil or water, and none of them, expect in the imagination of Sir H. Thompson, to have been disseminated by water. Where, I would ask him, has he ever seen the water which does it? Water, except in the shape of rain, is never found at, or near, the surface of the ground, or within many feet of it. As we pass an excavation made for the foundations of a house, which excavation is much deeper than the bottom of the deepest grave, we see no such water; or even in larger and deeper excavations made for the building of a church or a theatre; or for the laying of pipes, or even in deep railway cuttings. The exposed surfaces of all these excavations and cuttings are, in fact, perfectly dry. Springs, again, come from a depth, and arrive at the surface by isolated channels of their own. Is not this suggestion of the water, therefore, an afterthought, a convenient probability rather than a fact, to tack on to and account for the statement that the buried body is a propagator of infection?

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[1] I include under the term "surface water" all water which after being used for domestic purposes is discharged into drains and cesspools, and from them into rivers and other effluents, natural and artificial, such as the Elbe at Hamburg, common sewers, etc.

Bacteria, again, which are said to "swarm" (as if they were animals) in the earth and to "prey" on the buried body, are minute cellular organisms, which multiply by fissure, and, like all other *plants* (including mosses and fungi), grow best when undisturbed. Like plants, also, they require for their growth carbon and nitrogen; water also and a certain temperature are necessary for the maintenance of their vitality. Like plants, also, by the disintegration of organic combinations containing nitrogen, they produce certain chemical products, and. as fungi, assist fermentation. They vary, too, as to the amount of atmospheric air they require, some of them, like the bacteria of *anthrax* being unable to maintain their vitality without it, and some being able to do with little (the so-called aërobic and anaërobic bacteria of Pasteur). That any of them, however, are able to do altogether without air I do not believe, and therefore humbly decline to admit these terms as warrantable. Like other plants, again, some are reproduced by spores, or seeds. When, by a line ararrangement of their primitive cells, they grow like rods, bacteria are called bacilli. Anthrax is a bacillus of this kind, and being, like *Bacillus septicus*, what is (improperly) called anaërobic, dwindles and dies when deprived of air. If, therefore, the body of an animal which has died of anthrax is buried entire, *i.e.* without being opened, the bacilli which characterize this form of disease die with it, and, notwithstanding statements to the contrary, not only die with it, but are incapable of reproduction. The infection of anthrax cannot, in fact, as cremationists declare, be spread when so buried. When, therefore, it has been reproduced in fields in which cattle infected with the disease have grazed, died and been buried, the fresh outbreak is owing not to the buried carcass, but to the spores which have been left by the *dejecta* of the infected animals upon the surface of the field in question. Both Klein and Koch are fully agreed as to all this, and Koch, in addition, has proved by direct experiment[1] that the spores of anthrax are not, as Pasteur has stated, taken up by earthworms and deposited on the surface by their castings; and that the spores of anthrax bacilli, when mixed with earth in which worms are present, are not taken up by these creatures at all. Klein, indeed, carries these statistics further, and says—"If bacilli grow in the depths of a fluid medium—in a medium, *i.e.*, but scantily supplied with air—they do not form spores, and at length degenerate, and, as the fluid dries up, this degeneration goes on till, finally, nothing is left of them but their *débris*. Such bacilli, of course, are quite innocuous when introduced into the tissues of animals, or into fresh nourishing media."[2] Those, therefore, who have been able to follow me in this statement—a statement examined, re-examined, and confirmed by the most eminent men to whom I have submitted it (and, as I now understand, admitted by Pasteur himself) —will see how little reliance can be placed on the reports spread broadcast over the country by the advocates of cremation, that bacteriology is fatal to the practice of burial—and, on the contrary, how recommendatory it is of that practice, and how adverse to cremation. So much for the bacterial bugbear.

Lastly, and as my strongest point of all, I addressed to such medico-legal authorities as I thought best qualified to answer it, the following question: "Do you, or do you not, agree with a statement made by Sir H. Thompson, at the Congress of Hygiene and Demography, that a human body, dead of an infectious disease and buried four feet below the surface of the ground, is capable—by water percolating the soil or by any other known agency

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[1] Mittheil. a. d. k. Gesundheitsamte, 1881.

[2] Klein "Micro-organisms and Disease," ch. xi. pp. 155, 156 Macmillan 1886.

—of propagating the infection of that disease or of any one of those diseases which are understood to comprehend the zymotic death-rate; has any case of infection so conveyed ever occurred to you or come within your observation or knowledge; and, the present state of sanitary science considered, do you believe in the probability of such conveyance?" The answers to this question, though too variable in terms to be reproduced separately, I am justified in saying, amount to this: "The statement you refer to is not consistent, either in part or in the whole, with the trained observation and experience of this country. Of the eight diseases known as zymotic—namely, small-pox, measles, scarlet fever, whooping-cough, diptheria, enteric fever in various forms, cholera, and diarrhœa—the first five require for their propagation contact, more or less complete, in the air, and the last three the actual introduction into the alimentary canal (which is the seat of the disease) of animal *dejecta* by surface soil or surface water. To include in one common category all these diseases, as if they had a common origin, is, to say the least, unscientific, and—the nitrifying power of the earth on water charged with animal matter considered—in the highest degree improbable, if not impossible. No known warrant exists in fact for any such statement. If, out of the hundreds and thousands of these diseases which have come under observation within the last twenty years, any one of them has proceeded from, or depended upon, the neighborhood of burial-places in which such cases had received interment, all we can say is that the fact, if it has ever occurred, has been overlooked with singular uniformity by scientific observers.

As to the alleged poisoning of the springs and watercourses in the neighborhood of the buried body, I cannot do better than quote an interesting account given us by Sir John Simon, F.R.S., of a certain pump in Aldgate, which stood, and possibly stands still, near the old burial-ground there (see appendix, pp. 170–172, to his second annual report of the health of the City of London). Of this pump Sir John speaks as follows:

"The water from this well is perfectly bright, clear, and even brilliant; it has an agreeable, soft taste, and is much esteemed by the inhabitants of the parish, though, as will be seen by the subjoined analysis, it is an exceedingly hard water, and unfit for all culinary and most domestic purposes . . . (yielding carbonates of lime and magnesia, sulphate of lime, chloride of sodium, nitrates of potash, soda, magnesia, and ammonia, silica, and phosphate of lime; but of organic matter none, or scarcely a trace). . . . The quantity of nitrates in this water is very remarkable. The salts are doubtless derived from the decomposition of animal matter in the adjacent churchyard. Their presence, conjoined with the inconsiderable quantity of organic matter which the water contains, illustrates in a very forcible manner the power that the earth possesses of depriving the water that percolates it of any animal matter it may hold in solution; and, moreover, shows in how complete and rapid a manner the process is effected. In this case the distance of the well from the churchyard is little more than the breadth of the footpath, and yet this short extent of intervening ground has, by virtue of the oxidizing power of the earth, been sufficient wholly to decompose and render inoffensive the liquid animal matter that has oozed from the putrefying corpses in the churchyard."

I consider, therefore, I am now justified in putting to Sir H. Thompson the following questions:

1st. When, where, and by whom has any outbreak of small-pox measels, whooping-cough, or typhus been shown to be due to water-borne infection?

2d, When, where, and by whom has any water-borne epidemic or any other specific disease, been proved to be due to specific contamination from a burial-ground?

3d. When, where, and by whom has any zymotic disease whatever been shown to be due to interment when carried out four feet or even much less below the surface?

4th. When, where, or by whom has even increased general sickness, or increased general mortality, been shown to be caused by interment?

5th. What definite statistical evidence, in fact, is there to show (*a*) that the general death-rate, or (*b*) the zymotic death-rate, or (*c*) the death-rate from any group of diseases, or (*d*) the death-rate from any single disease, zymotic or otherwise, has ever been affected by burial, even under the present objectionable conditions?

And if Sir H. Thompson cannot, or will not, answer these questions, will he correct the *dictum* current in Manchester and other cremationist centers, that it is now "a recognized principle that contagious diseases (*sic*) are so spread"—a statement which is going the round of the cremationist press, and which is depended upon as a warrant for the erection of crematories in Manchester, Liverpool, Bristol, Darlington, etc.; and further, is he aware that the inducement openly held out to would-be shareholders in these ventures is in no respect a sanitary object, but the dividends which their promoters declare they cannot fail to yield? I very much doubt whether Sir H. Thompson will find it convenient to answer these questions. If he will not, I call upon him, at all events, to furnish the provincial press with such a correction of Mr. Chancellor Christie's statement at Manchester as will, at least, go to prove that cremation is a hygienic, and not a speculative movement.

And that reminds me to ask—since it is certain that the burning of a few bodies here and there can make no sensible impression on burial, either as a rite or as a custom—what is the object of this cremationist agitation? Is it a mere scientific fad, or does some ulterior aim, or aspiration more or less occult, lurk at the bottom of it? I cannot and will not believe the common report that, as at Manchester and elsewhere, it is a mere trade operation, and that, instead of the magniloquent title of "The Cremation Society of England," a designation more in harmony with such ventures would better describe it. Nor, surely, now that the pestilent and pretentious vault is going out of fashion, can it be that it has for its aim the creation of yet *another aristocracy of the dead*,—of a new class, able and vulgar enough—rather than lie with their fellows—to pay for a separate and more ostentatious treatment of their poor remains. The healthy mind revolts at a phase of vulgarity, under the circumstances, so terribly misplaced! The question, therefore, still forces itself to the front—what *is* the object of this Society.

III. To prove that as the practice of cremation would render the rectification of any mistake as to the cause of death impossible, such a practice cannot fail to operate as a direct incentive to crime—especially to such forms of crime as are known to be difficult of detection without prolonged, and possibly repeated, methods of investigation.

I now, and I trust for the last time, come to that part of the subject which no cremationist if he can help it is willing to hear mentioned, which the newspapers engaged in the cremationist propaganda are careful not to discuss, and which, whatever the momentary success which may attend (or appear to attend) the agitation of the question, will assuredly, sooner or later, provoke the repressive action of the law.

With this part I may at once explain, I have done precisely as I did when dealing with the sanitary part of the subject—put myself, that is to say, into personal communication with those members of the medical profession who, better instructed than myself, have had to cope with such cases in the courts of law, and whose experience is to be found in a concentrated form in the text-books on Medical Jurisprudence.

Taking note of Sir H. Thompson's statement to begin with, that "only 102 exhumations had been made during the last twenty years, and only one murder a year been discovered by them," I first applied to the proper official quarter for the record of such cases, and learnt, not only that no such return had ever been made, but that, inasmuch as such return, if made, would not include the exhumations ordered by coroners, it would not be accurate. From Dr. Thomas Stevenson, again, the eminent government analyst, and editor of Taylor's great work on medical jurisprudence, I learnt that, "though he could not recall without great labor all the cases he had met with, he had, yet, not only discovered poison by their exhumation, but had been able, by such exhumation and analysis, to prove the innocence of suspected persons." From Mr. Thomas Bond F.R.C.S., Consulting Analyst to the Westminster Hospital, I learnt that though, like Dr. Stevenson, he could not furnish particulars of every case he had had to do with years ago, he had yet had no less than four such cases in the course of the year 1891, all of them proving (by exhumation of the body) murder by arsenic; that in the year 1892 he had made two such exhumations, which proved to him that a double murder had been committed—a man, in one of them, having been shot from behind at a distance of six feet or thereabouts, and a woman also in the back, at a distance of one foot, a coroner's jury notwithstanding, having found the wounds in both cases "accidental," and the result of a struggle between the two. That, on another occasion, he had exhumed a body after two months' burial, and found that death had resulted from the performance of an internal illegal operation, and that he had had a similar case since. That, in the case of Harriet Lane, murdered by Wainwright, after twelve months' burial, and though an attempt had been made to destroy the body by quicklime,[1] he had proved murder by a bullet wound in the brain. That in the case of the Austrian, De Tourville, who killed his wife on the Stelvio, the case brought home to him had turned out (by exhumation of the bodies) to be only one of several, one of the victims being his first wife's mother, whose death, after twelve years' burial, was shown to have been caused, not, as was certified, by an accidental wound in the eye, but by a shot from behind. Mr. Bond, too, ends his letter with this pertinent reflection, that he "*had no doubt that many persons skilled in the use of poisons would more frequently resort to them if it were not for the knowledge that their operations were liable to be handicapped by exhumation.*" Mr. Lowndes, again, the well-known surgeon of the Liverpool police, reports in the *Times* an equally instructive case. In this case two women, Higgins and Flannigan, had combined to murder, and did murder, by means of arsenic, a man of

[1] Quicklime is found, contrary to Sir H. Thompson's statement, to harden animal tissue and retard its destruction.

the name of Higgins, the husband of one of them, the crime being discovered by a *post-mortem* examination of the body before its burial; and that this murder had brought to light (by exhumation) no less than ten others by the same women, at the examination of three of which he (Mr. Lowndes) had himself assisted, the cause of death in all of them having been certified to have arisen from poison. Yet, that as the case of the man Higgins was complete in itself, and the exhumation of the ten others had been merely "corroborative, not essential" to the discovery of that case, therefore they ought not to be counted, and need not, in his (Mr. Lowndes's) opinion, stand in the way of a fair trial to do without exhumation!

Quitting, however, these cases, the result of current experience, and going for further information to the text-books, which positively bristle with them, we find in them abundant exidence of how fatal it would be to the ends of justice to do away with exhumation, and to rely on certificates merely. I need only refer here to a few of them. A man named Winslow is tried for poisoning his mistress, by antimony; three of his relatives are exhumed in consequence, and all of them are proved to have been put an end to by the same poison, notwithstanding which (and for some reason satisfactory, possibly, to a cremationist) the man was acquitted. At Bilston, three children die in one family, antimony being found in the bodies of two of them, and two months afterward (by exhumation), in the body of a third, the cause of death, in the last case, having been certified as "asthenia and gastric fever." Mary Ann Cotton, again, poisons her stepson, whose body (being exhumed) is found full of arsenic; whereupon, further exhumations bring to light the cases of no less than nineteen other persons, all of whom had been murdered by arsenic, viz., those of her mother, fifteen children, three husbands, and a lodger, making up the ghastly roll of twenty in all. The case, however, most to the point for the purposes of such a paper as this, because of the contradictory opinions it elicited as to the "cause of death," is undoubtedly that of William Palmer, executed at Rugeley for the murder of J. P. Cook, because in that case the murderer would, undoubtedly, have got off but for the exhumation of six others of his victims, all of whom were found to have been murdered by him with the same motive, though not always (he being an expert) by the same means. I lay peculiar stress on this case, because it furnishes a complete answer to those who, like Sir H. Thompson, Mr. Lowndes, and others, seem to think that with a better system of certification we may safely do without exhumation. Alas! medicine is not, and never will be, the exact science which such reasoning supposes, and under no conceivable circumstances shall we be able, without such ocular demonstration as exhumation affords, to say—with anything like certainty—that certain symptoms which are compatible with death from natural causes are not also compatible with death by poison. Palmer, for instance, poisons Cook by a mixture of strychnine and antimony. The strychnine kills, and the poison is removed by the vomiting purposely (?) set up by the antimony. At all events, neither poison is found in the unburied body in sufficient quantity to warrant a conviction for murder. Moreover, the action of both these drugs is so consistent with the symptoms of certain forms of disease, that no two medical witnesses dealing with that case alone could be found to say with certainty to which category they belonged. "Bilious cholera," "Epilepsy, with tetanic convulsions," and "Angina pectoris" were each, in fact, certified by eminent practitioners as the cause of death, one of these gentlemen going so far as to write a pamphlet to show that the others were wrong! *Now what, I ask, would have been the result in this most instructive case, if it had not been for exhumation?* First, while the case of Cook is under examination the body of Ann Palmer, Palmer's wife, after fifteen months' burial, is taken up, and murder by antimony discovered, "Bilious cholera" having being certified as the cause of her death. Two other medical certificates had also been given to the same effect, which, says Taylor, in narrating the case, "coupled with the social and professional position of the murderer, checked all suspicion." Walter Palmer, again, on whose life his brother had effected insurances to the extent of £82,000, was poisoned by him with prussic acid, and it was on the strength of these discoveries that the body of Cook (being exhumed) was again examined, and then it was, and not till then, that it presented all those appearances which are now known to depend on poisoning by strychnine—the limbs still flexed and rigid. These, with others—nine in all, if not more—would, but for exhumation, never have come to light; nor would Palmer himself have been convicted. And again, may not exactly the same thing be said, notwithstanding an extraordinary amount of special pleading in the *Times* by Sir H. Thompson, of the case of Neil and his four victims? If, instead of being available for exhumation, the bodies of these four poor creatures had been cremated, where would Neil be now, and what would he be doing? True, in his last letter to the *Times*, Sir H. Thompson hopes to be able to "devise" a death certificate which may be depended upon as a safe warrant for cremation. He may hope; but if he will read, not our English books (for we are terribly behindhand on the whole subject), but the French and German standard works which deal with it—"Briand et Chaudé" in particular, and the several able contributions to the same end by Brouardal—he will see how vain that hope would be. Nay, he would also find this—that, however advanced on all such matters both these continental nations are, no such certainty has ever been arrived at even by them. The suggestions of Dr. Brouardel on this part of the question are, in fact, invaluable, and sufficient in themselves to set at rest the ignorant pretensions of the Cremation Society for ever. I have by me a short report by this eminent *expert* to the French government on this very matter. It is enough to satisfy anyone of the absolute necessity, in certain cases, not of one but of several *post-mortem* examinations of the same case, before the death certificate could by any possibility be arrived at. Another proof of Sir H. Thompson's imperfect understanding of the seriousness of a subject which he would thus dispose of so easily is to be found in the common belief that it is only in cases of poisoning that we need apprehend any difficulty in making out a satisfactory death certificate. However, Dr. Brouardel shows that poisoning—though in these days of vegetable alkaloids a difficult crime to be sure of—is by no means the only crime to puzzle the medico-legal expert. I am not now speaking of cases in which death was the invariable result. I hold in my hand a return of cases of all forms of crime, whether ending in death or not, which this gentleman alone has been called upon to investigate in the course of six years—that is to say, between the years 1878 and 1883, both years included. It will astonish those, I think, who heard Sir H. Thompson say at the Congress of Hygiene and Demography that only one murder a year was discovered by examinations of this kind—examinations undertaken not only for the discovery of cases of poisoning, but of crime of all sorts. After quoting no less than 749 of these examinations, Dr. Brouardel tells us, as if in correction of Sir H. Thompson's statement, that no less than 445 yielded results of a nature to lead to a conviction, while 255 only were insufficient to do so; and this accords with Dr. Stevenson's experience when, in his letter to me, he says that while he had often been able to detect crime, he had also not seldom been able to prove the innocence of the suspected person. I must not take up time by going through the long list of crimes of all kinds which Dr. Brouardel has had to deal with; but it will, I am sure, surprise many who hear me to learn that poisoning formed but a comparatively small part of them—but eighty-one cases, in fact, while in forty-two of those no poison was discoverable, and "natural death" certified. I have, however, quoted enough to show the very onerous and responsible nature of the obligation which the Cremation Society is taking on itself so easily—a responsibility the degree of which the newspapers which support them can have no idea, and of which, it is equally clear, they have no idea themselves. Meanwhile, for the purposes of this paper, I am content to depend on the case of Palmer alone, as a case which, since it puzzled half a dozen medical men, would certainly have puzzled the all-sufficient expert—whoever he may be—depended upon by the Cremation Society.[1]

CONCLUSIONS.

I have now done, and the conclusions I have arrived at—many of them, I may say, forced upon me—are as follows:

1. That, owing to the one-sided statements put forth by the Cremation Society, a very general impression has been created that there is only one kind of burial, and only one remedy for it—cremation; a statement which is entirely misleading.

2. That this belief has been greatly assisted by the systematic suppression on the part of an influential portion of the press of all effectual answers to the cremationists' statements, and that, in this way, the country has become flooded with these unopposed statements.

3. That the government, as represented by the divided authority of the Home Office and the Local Government Board, is equally to blame for allowing the abuses I have pointed out to go on, and is therefore, to that extent, responsible for the cremationist agitation.

4. That burial, as at present carried out in coffins which prevent the resolution of the body, is equally a reproach to the intelligence of the country and to the government that permits and even prescribes such a practice.

5. That, to make the practice of burial perfectly harmless, and to do away with all excuse for cremation, nothing more is necessary than to take this matter of the coffin out of the hands of the undertaker, and to make its structure and composition a matter of state regulation.

6. That, while burial, properly conducted, is a complete and perfect process, leaving no *residuum* behind it, cremation is an incomplete and imperfect process, leaving a considerable and very embarrassing

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[1] So important is this matter of the "death certificate" held in Germany that, when two or more experts disagree on the point, the case is referred to a special court consisting of the most eminent men in the country, and only decided on their report. This court at Berlin is at the present moment actually composed of MM. Virchow, Professor of Pathological Anatomy; Hoffman, Director of the Chemical Institution; Bardeleben, Professor of Surgical Clinique; Quincke, Geh. Med. R.; Skarzecka, Professor-Extraordinary; Eulenberg, Geh. Ob. Med. R.; Westphall, Clinical Professor of Mental Maladies; Kerstandt, Geh. Ob. Med. R.; Schroeder, Clinical Professor of Obstetrics; V. Bergmann, Professor of Clinical Surgery; Pisotr. Polizei Præsidium.

residuum behind it—a *residuum* equal in bulk and weight to $\frac{1}{20}$th part of the whole body, and for the disposal of which it makes no provision whatever.

7. That while the earth properly used, is capable of disposing of any number of dead bodies, and of disposing of them insensibly and with advantage both to its own substance and to the air above it,[1] the practice of cremation on a scale large enough to have even the slightest influence on burial either as a rite or as a custom, supposes the necessity not of one but of many furnaces with tall chimneys, the use of which, in towns, no municipal authority in its senses would for a moment permit; and which in the open country would cause such a consumption and carbonization of pure air as to render (changes of wind considered) a large area in the neighborhood of such chimneys uninhabitable.

8. That Sir Henry Thompson's statement that burial, however conducted, is "a propagator of infection and a cause of increase in the zymotic death-rate," is absolutely without warrant, and abundantly disproved by expert evidence from all parts of the country.

9. That water is not, as he has stated, a carrier of any one of the contagious diseases which comprehend the zymotic death rate.

10. That bacteriology, so far from being adverse to burial, is distinctly in favor of it.

11. That Sir H. Thompson's further statement made at the Congress of Hygiene and Demography, as to the number of exhumations made, and of murders discovered by them, is absolutely incorrect, unless he counts Palmer's six cases as one, De Trouville's seven as one, Higgins and Flannigan's ten as one, Cotton's twenty as one, Dr. Brouardel's four hundred and forty-five as one, and so on.

12. That the natural destination of all organized bodies that have lived and that die on the earth's surface is the earth.

13. That the evils supposed to be inseparable from the principle of interment are independent of that principle, and of our own creation.

14. That the source of these evils is to be found, not in the burial of the dead, but in the unreasoning sentiment which prompts us to keep them unburied as long as possible, and then to bury them in such a way that the earth (and the air) can have no access to them.

15. That the principle of burial supposes the resolution of the

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[1] It is to be remembered, in this connection, that as all things that have lived die and return to the earth, so the amount of decay which the earth is thus continuously and insensibly disposing of is exactly equal to the whole sum of life which is present upon its surface!

body by the agency of the earth to which we commit it, and that the earth is competent to effect that resolution, and to effect it innocuously.

16. That to seek to prevent the beneficent agency of the earth by inclosing the dead in imperishable coffins, brick graves, and vaults, is in the highest degree irrational, since it engages us in a vain resistance to an inevitable dispensation, and has led us to accumulate in our midst a vast store of human remains in every stage and condition of decay.

17. That, unwarned and undeterred by the magnitude of the evils we have thus created, we are still engaged in extending and perpetuating them.

18. That, were the dead only properly buried, not one of those evils would have any existence, not a single dead body would remain to encumber the soil, and a quantity of land of incalculable value, now hopelessly alienated, would be liberated for purposes of hygiene and of utility.

19. That the remedy for such evils is, therefore, not in cremation or in any of the alternatives that have been proposed for burial, but in a sensible recognition of, and a timely submission to, a well-defined law of nature, and, since some of these alternatives are dangerous, in legislative action to enforce the provisions of that law.

20. That the destruction, by cremation, of all demonstrable evidence of the cause of death—of all such evidence, that is to say, as is only to be obtained by the exhumation of the body—is a danger to society, and an arbitrary act on the part of an irresponsible body of persons, which ought to be at once made the subject of competent investigation, and, if its dangerous character is recognized, declared illegal.

It would therefore seem that what is wanted is not a bill to regulate cremation—which, on the contrary, *as a measure of public safety,* ought rather to be at once declared a misdemeanor—but a bill to regulate and insure *safe and proper burial*; which bill, to be effectual, should, besides dealing with the whole subject of cematerial management, contain the following provisions:

(1) For burial within the earth as the only legal mode of disposing of a dead body.

(2) For a limitation of time beyond which it should be illegal to keep a dead body unburied.

(3) For the illegality of strong coffins, brick graves and vaults, and of all contrivances having for their effect to retard resolution, and to confer on the dead a tenure, practically

illimitable, of the soil which is necessary to the purposes of the living.

P. S.—To meet the sentimental dread which some still entertain of being buried alive, I append the following question which I addressed to eminent members of the medical profession in 1875, with their reply:

"As hospital physicians and surgeons of extended experience, has it ever occurred to you to see a case of so-called suspended animation or trance which, in your opinion, could be mistaken for death; and do you think, the present state of our knowledge and resources considered, that the occurrence of such a case, or of such a mistake, can be regarded as possible?"

"In reply to this question, we desire to say that no case of the kind it suggests ever presented itself to any of us, and to express our confident belief that the dread of the possible occurrence of such a case is without support in the medical experience of this country; and further, that the signs of death are as certain after a few hours' suspension of the vital functions as they can be after many days.

"It would, we feel, be a matter of regret, and an indication of a low state of public intelligence, if the groundless fears to which our attention has been directed by Mr. Seymour Haden should hinder, for a moment, the adoption of an improvement in our social system, the importance of which cannot be overrated.

"George Burrows, M.D., President of the Royal College of Physicians.
"Wm. Furgusson.
"William W. Gull, M.D.
"William Jenner.
"James Paget.
"Thomas Watson, M.D."

Note: In the conclusions arrived at in his article Mr. J. Seymour Haden overlooks the necessity, which, in the former portion of it, he so earnestly argues, for post-mortem examinations of the body in the interests of law and science.—Ed.

BOOK REVIEWS.

"The Disease of Inebriety from Alcohol, Opium and Other Narcotic Drugs." Its Etiology, Pathology, Treatment and Medico-legal relations. Arranged and compiled for the American Association for the Study and Cure of Inebriety, by T. D. Crothers, M.D., Secretary, New York. E. B. Treat, publisher, No. 5 Cooper Union, 1893. (Price $2.75.)

The American Association for the Study and Cure of Inebriety was formed in 1870. Its membership was composed of physicians connected with asylums for inebriates, and others interested in the scientific study of the drink problem. The following are among the principles adopted by the society: Inebriety is a disease, curable as other diseases are. The constitutional tendency to this disease may be either inherited or acquired. The disease is often induced by habitual abuse of alcohol or other narcotic substances. Alcohol has its use in the arts and sciences; its use in medicine is more or less dangerous and should be prescribed with caution. All methods hitherto employed for the treatment of inebriety that have not recognized the disordered condition have proved inadequate; hence the establishment of hospitals in which such conditions are recognized becomes a decided need of the age.

During the first years of this association's work, an annual volume of transactions was issued. This gave place in 1877 to a quarterly *Journal of Inebriety*, whose special work has been to gather the scientific literature of this subject and make it available for future study. Many members have also published volumes upon the subject and have written largely in other journals.

This literature has been copied extensively and made the subject of lectures and sermons, but in many cases the original ideas have been seriously changed and modified. The most confusing uncertainty therefore exists concerning the scientific status of this subject. The subject has recently attracted renewed attention through the emperic assumptions of specific remedies for its cure. An authoritative grouping of the study of scientific men in the profession seemed demanded. It was recognized by the American Association, which directed its secretary, Dr. Crothers, to prepare the present volume, giving some of the best papers which had been published in the *Journal of Inebriety*. The present volume is therefore the result of such action. It gives many of the best and most suggestive studies which have appeared upon this subject. It is by all means the most comprehensive and scientific work which has ever appeared upon inebriety, and is worthy of the study of the entire profession. It is not alleged that the study of the subject is complete; it is in its infancy. Although a vast amount has been written and spoken upon the subject of temperance, comparatively little has been written in a truly scientific spirit.

After a brief history of the subject, several chapters are devoted to the subject of exciting causes. This is followed by one of especial interest on inebriety in America. This is followed by several interesting chapters upon the heredity of the disorder and its relation to the various diseases.

The effects of the various forms of the drug are considered. The study of heredity is exhaustive, and exceedingly interesting The chapters devoted to the responsibility of the inebriate and medico-legal considerations are of great value. The volume is not confined to alcohol drinking, but treats of the inebriety of opium, ether, cocaine, chloroform, nicotine, tobacco, coffee, tea and numerous other elements.

"The Bacterial Poisons." By Dr. N. Gamaleia, translated by E. P. Hurd, M.D., Member of the Massachusetts Medical Society and of the Climatological Society, one of the Physicians to the Newburyport (Mass.) Hospital. 1893. George S. Davis, Detroit, Mich. Physicians' Leisure Library. (Single copies 25 cts.)

A vast amount of time and labor have been devoted during the past decade to the study of bacteriology, but the bacterial poisons are here for the first time made the subject of a connected treatise. As soon as the theory of the bacterial origin of the disease began to be developed, became necessary to explain their mode of action. The theory has slowly but steadily gained ground that bacteria acts by the production of chemical poisons; that disease is to a certain extent secondary to the bacterial action; that it depends more especially upon a toxhæmia. It has, hence, become necessary to study the chemical poisons produced by microbes. This theory of bacterial toxicology has been strongly contested by chemists, but has steadily gained ground and is now accepted by all well informed students. In this study three diseases have been of peculiar interest—cholera, diphtheria, and tetanus—diphtheria having received the most attention. In these diseases, the pathological agent is found located in a limited part of the organism, where it produces the poison which, being absorbed, generates general infection. The study of these poisons concerns not only the pathogeny of the infectious diseases, but it is also of great importance as regards prophylaxis and treatment. Methods of vaccination will perhaps be soon developed without the direct use of living germs, the product of these germs only being employed.

The first part of the work—History of Microbial Toxicology—describes the evolution which the study of systematic poisoning in the infections has undergone. The second part—General Toxicology—treats of our actual information concerning the chemical nature of the microbial poisons, their production and their destiny in the animal body. The third part—Special Toxicology—is the exposition of the data acquired concerning the toxines of different diseases. These diseases are tetanus, diphtheria, tuberculosis, charbon and glanders. Our knowledge of the ptomaines of other diseases is slight.

The work is a most important one and is written by a master of the subject. The translator has left little to be desired. Its introduction into the series was a most commendable undertaking on the part of the publishers.

"Electro-Therapeutics of Neurasthenia." By F. W. Robinson, M.D., 1893. George S. Davis, Detroit, Mich. Physicians' Leisure Library. (Single copies, 25 cents.)

Neurasthenia is a very uncertain condition. It has been made to cover a multitude of disorders, from actual spinal irritation to simple nervousness. The mere use of the term by a physician tells us little of the condition of the patient without an explanation by him of its meaning. That there are numerous cases of functional disturbance to which no name can be properly applied is undoubted. Every physician sees them in his practice and calls them neurasthenia, nervous debility or nervous prostration. There is no doubt, also, that, as the author says, neurasthenia is a pretty clear cut morbid entity, is not easy to define. It is a lack of nervous force, or nervous bankruptcy, whose chief symptom is vaso-motor instability. The condition is a changeable one. At one time, anæmia of a certain organ and hyperæmia of another may be present, the condition being perhaps in a short time inverted. This is sometimes due to some organic disease in other organs, but no local cause alone produces neurasthenia in a system in which the nerves are in their normal condition. There is danger of overlooking the fundamental cause of a complicated case and passing it lightly by as simply one of neurasthenia. The disease is undoubtedly increasing. In this age when life is carried on at high pressure, an over strain or some sudden shock or disaster not infrequently results in a condition of complete mental and physical prostration.

As the condition is complicated and essentially chronic, no single plan of treatment is sufficient. Diet, hygiene, and regulation of the daily life are of the utmost importance. Medical treatment is of comparatively little importance. There can be no question of the efficacy of electricity properly and judicially applied. The little book in question describes extremely well these applications, the only criticism to be passed upon it being the fact that the author seems somewhat inclined to attribute too much importance to it as a curative agent.

"Sterility in the Woman and its Treatment." By Dr. De Sinety. Translated by E. P. Hurd, M.D., 1893. George S. Davis, Detroit, Mich., Physicians' Leisure Library. (Single copies, 25 cts.)

This is a very excellent review of an important subject, by a well known continental authority upon obstetrics and the diseases of women. It is slightly abbreviated from the original treatise to bring it within the limits of the manuals of this series. But little of true value has been omitted, however, and it contains all that is essential upon the subject as the author has written it. It is comprehensive, and the author has evidently no hobby to ride. He takes up in turn each possible cause of sterility and discusses it in a practical, common-sense way. Uterine deviations receive comparatively little space, but much attention is given to metritis and causes existing in the uterus. The latter is a common and very obstinate source of difficulty. Pelvic peritonitis receives considerable attention, although ,as a permanent cause of sterility he does not consider it especially frequent. The disorders of menstruation receive considerable attention, and properly so. The rules for management are excellent, and may be profitably carried out for the relief of other symptoms. The book is well worth study and will prove of unquestioned value in the management of this frequent and often obstinate disorder.

"Modern Gynecology, a Treatise on Diseases of Women, comprising the Results of the Latest Investigation and Treatment in this Branch of Medical Science," by Charles H. Bershong, M.D., Assistant Gynecologist to the Demilt Dispensary, New York, formerly Attending Physician to the Northern Dispensary, and Assistant to the Vanderbilt Clinic, College of Physicians and Surgeons, New York. Illustrated. New York, E. B. Treat, 5 Cooper Union, 1893. (Price, $2.75.)

The necessity for another work on gynecology is not at first sight apparent. A work must be judged in a certain measure by the object proposed by its author. In the present instance the author refers to the fact that, almost without exception, works on this subject are large and pretentious, and are written from a single standpoint, that of the specialist. He therefore proposed to write a work for the special use of the family physician and the busy practitioner who have not time to read a large and exhaustive work. It is certainly true that the family physician should be well informed upon this most important subject. Except in large cities, specialists are not accessible. Even there, they do but a portion of the work in this department.

The author proposes, therefore, to place before the physician a clear common-sense statement of the symptons of the diseases peculiar to women, and to indicate in detail the methods of treatment that can be applied by him. In this the author has been successful in a marked degree, and the work will prove a great assistance to the general practitioner.

"Transactions of the Medical Society of the State of New York for the **Year 1893." Published by the society, 1893.**

The New York State Medical Society has done much good work during the past few years. The annual volume of the transactions, unlike that of many organizations, is a volume of decided value, and worthy a place in any medical library. The present volume, besides the usual list of members and officers, contains two addresses and forty-four papers. Puerperal sepsis and allied conditions are discussed in two papers. A prolonged discussion upon the relative value of certain obstetrical operations is of unusual merit, as is also the discussion upon epilepsy. Eight papers are devoted to the subject of carcinoma and malignant diseases, and are in every instance of a high order of merit.

In appearance the volume is a decided improvement over that of some former years.

"Cholera: Its Causes, Symptoms, Pathology and Treatment." By Roberts Bartholow, M.D., LL.D., Emeritus Professor of Materia Medica, General Therapeutics and Hygiene in the Jefferson Medical College of Philadelphia. In one 12mo volume of 127 pages, with nine engravings. Cloth. $1.25. Philadelphia, Lea Brothers & Co., 1893.

In this book the author has sought to combine brevity with practicability. He gives his experience in two epidemics of the disease. No amount of individual observation, however great, can be relied upon to take the place of the multiplied experiences and far reaching discoveries of modern science. For this reason, the work includes whatever is most noteworthy in the improvements made during the late epidemic. The constantly increasing proportion of cures following improved therapeutical measures is the justification for the relatively large space devoted in this volume to the subject.

A NEW ILLUSTRATED DICTIONARY OF MEDICINE, BIOLOGY, AND COLLATERAL SCIENCES.—Dr. George M. Gould, already well known as the editor of two small medical dictionaries, has now about ready an unabridged, exhaustive work of the same class, upon which he and a corps of able assistants have been uninterruptedly engaged for several years.

The feature that will attract immediate attention is the large number of fine illustrations that have been included, many of which—as, for instance, the series of over fifty of the bacteria—have been drawn and engraved especially for the work. Every scientific-minded physician will also be glad to have defined several thousand commonly used terms in biology, chemistry, etc.

The chief point, however, upon which the editor relies for the success of his book is the unique epitomization of old and new knowledge. It contains a far larger number of words than any other one-volume medical lexicon. It is a new book, not a revision of the older volume. The pronunciation, etymology, definition, illustration, and logical groupings of each word are given. There has seldom been such a gathering of new words from the living literature of the day. It is especially rich in tabular matter, a method of presentation that focuses, as it were, a whole subject, so as to be understood at a glance.

The latest method of spelling certain terms, as adopted by various scientific bodies and authorities, have all been included, as well as those words classed as obsolete by some editors, but still used largely in the literature of to-day, and the omission of which in any work aiming to be complete would make it unreliable as an exhaustive work of reference.

The publishers announce that, notwithstanding the large outlay necessary to its production on such an elaborate plan, the price will be no higher than that of the usual medical text-book.

GRAY'S ANATOMY, NEW (13th) EDITION.—Another edition, the thirteenth, of this standard work, is announced for early publication by Messrs. Lea Brothers & Co. It is hardly too much to say that this work has been the most popular of all medical text-books since its first appearance in 1851. Its text has been revised successively by the foremost anatomists of a generation, and the present edition embodies whatever changes were necessary to make it represent its advancing science. The illustrations have always been noted for their clearness. Their large size has rendered it possible to print the names of the parts directly upon them, thereby indicating not only their names, but also their extent—a most important matter. A liberal use of colors has been made to secure additional prominence for certain parts. Notwithstanding these improvements, the constantly increasing demand has justified a reduction in the price of the colored edition. An early review will appear in these columns.

"A Chapter on Cholera for Lay Readers: History, Symptoms, Prevention and Treatment of the Disease." By Walter Vought, M.D. Small, 12mo, 110 pages, illustrated. Price, 75 cents. The F. A. Davis Co., Philadelphia, Pa.

We do not, as a rule, approve of medical books for lay readers. This attractive volume from the pen of Dr. Vought is no exception to the rule.

The people are not sufficiently educated, nor can they ever be, to receive scientific instruction. To give it to them is a waste of good material.

"A Hand-Book of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Naso-Pharynx," by Carl Seiler, M.D. Lea Bros., & Co., 1893. 4th Ed. Illustrated. Review later.

"A Manual of Medical Treatment or Clinical Theraputics." By I. Burney Yeo, M.D., F.R.C.P., Professor of Therapeutics in King's College, London. In two 12mo volumes, containing 1275 pages, with illustrations. Complete work, cloth, $5.50. Philadelphia, Lea Brothers & Co., 1893. Review later.

OBITUARY.

JUST AS the JOURNAL goes to press we learn with extreme regret of the death of Dr. Walter Vought, of this city.

His death was the result of typhoid fever, contracted while attending a patient. Dr. Vought was born in Buffalo thirty-one years ago. He was graduated at the Sheffield Scientific School of Yale University, in 1882, and subsequently from the New York College of Physicians and Surgeons, in 1885.

He was the physician in charge of Fire Island during the cholera scare of 1892, and was the author of a text-book on "Organisms Found in the Blood in Malarial Fever." His last work, "A Chapter on Cholera for Lay Readers," is noticed in this issue.

He was a young man of exceptional ability, and but for his untimely end would have attained to a high degree of distinction in his chosen profession.

Dr. Wm. B. Towles, Professor of Anatomy and Materia Medica in the University of Virginia, died suddenly at the University, on Friday, Sept. 15, having lectured to his class on the morning of that day. Dr. Towles was born in Fluvanna County, Virginia. He came of Revolutionary stock. His father before him was a prominent physician. He graduated in medicine at the University of Virginia in 1867. After graduation he practiced medicine in Missouri until 1872, when he was called to the University as Demonstrator of Anatomy. He served in this position until 1885, when he was appointed Professor of Anatomy on the death of Dr. John Staig Davis, for so many years the occupant of that chair.

Dr. Towles followed worthily in the steps of his predecessor in maintaining the high reputation of the medical school of the University of Virginia.

He was content with his congenial occupation of a teacher, and brought to the task a clear and luminous intelligence, a profound knowledge of his subject, and an amount of energy, zeal, and patience which knew no bounds. His students showed always and everywhere the results of his careful training.

He had for many years, in addition to his professional duties at the University of Virginia, occupied the position of Professor of Anatomy in the University of Vermont.

Thus he spent his life in the unostentatious position of an instructor, without any of the higher rewards which the profession offers. His untimely end will leave a void which will be hard to fill, for Dr. Towles had what is rare: a combination of the best qualities of a teacher.

MEDICAL NEWS AND NOTES.

Attention is called to the approaching meeting of The Southern Surgical and Gynæcological Association. This association has made a splendid record in a comparatively short time, and all who can be present in New Orleans in November are to be congratulated. The meeting will be held on the 14th, 15th and 16th. Dr. Bedford Brown being president, and Dr. W. E. B. Davis secretary, will add greatly to the usual attractions.

The ordinary sun glass has become lately a vaunted therapeutic agent. Sciascia, an Italian oculist, reports favorable results from photocauterization in trachoma, claiming more accurate and safer effects than are obtainable from other caustics.—*Boston Med. and Surg. Jour.*

Spasm of the Glottis.—Sir Morell Mackenzie, an acknowledged authority on laryngeal cancer, recently imparted to his brethren of the "Laryngological and Rhinological Association" an item of practical information regarding the successful treatment of that alarming and dangerous condition, spasm of the glottis, which is sometimes difficult and uncertain; but Sir Morell tells us that by setting up a rival reflex, the laryngeal spasm, itself a reflex usually due to peripheral irritation, may be overcome instanter. All one has to do is to get the sufferer to take a pinch of snuff or pepper, or, failing either condiment, to excite sneezing by tickling the mucous membrane of the nares. The immediate result is a paroxysm of sneezing, after which the patient sinks quietly back to sleep, breathing like a new born infant. The treatment is logical as well as practical, and is well worth a trial.—*Hospital Gazette.*

"GIVING THE QUILT."—The Queen, says *Hearth and Home*, is an expert and indefatigable knitter. During the Egyptian campaign she and the ladies of the Household employed themselves in knitting quilts, which, at the end of the war, were sent to Netley Hospital for the use of the wounded. One of these, made entirely by Her Majesty and bearing an elaborate V. R. in the center, was the coverlet *par excellence* of the institution, and in universal demand for a time. In assessing the claims of the candidates for the honor of sleeping under it, the medical staff naturally gave the precedence to the most severely wounded, and as the most severely wounded was the one most likely to die, very soon, alas! an evil omen attached itself to the distinction, the climax of which was reached one night, when a poor soldier, feeling some one touching his bedclothes, woke up with the perspiration pouring down his face, and cried out, "Oh, sir; do anything you like with me, but for God's sake don't give me the quilt!"

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EDITORIAL.

IN A LATE number of the London *Lancet* an article appears, in which well-known members of the profession in England are highly blamed for certain corrupt practices.

It seems that in the month of July, 1892, several physicians received letters from the concern of McDonald, Sons & Co., in which, in consideration of the prescribing by these men of the company's preparations, they were presented with a paid up share in that company of the value of £25.

Some of the men acknowledged receipt of the shares, and in so doing practically accepted the bribe so frankly offered. Unfortunately for the worthy recipients, the shares did not bear on their faces the statement that they were paid up, and when the company in the regular course of business had to suspend, these gentlemen's names were put on the list of shareholders.

The way in which the whole affair was brought to light was that the physicians made an application to have their names stricken from the list of contributories. Although such a grave breach of honor (to say the least) has rarely come to our knowledge as having been committed in this country, we are well aware that a practice not much better able to stand the light of day has been going on for some time here in our midst.

The manufacturers of a certain very prominent and well-known preparation constantly employ presumedly reputable medical men whose business it is to "see" physicians and "present" them with a number of bottles of the preparation.

In consideration of a certain sum of money, the physicians in question prescribe the medicine to their confiding patients, and, if any goods results are obtained, the physician writes it up as a case of a remarkable cure effected by John Smith & Company's Specific. For these papers they are paid in proportion to the ingenuity of their insinuations.

The company then proceeds to send these reports to various medical journals as original articles or original communications. It is quite proper, of course, for men out of the profession to use every lawful device to forward the interests of their various drugs, often very valuable. It is only these extremely dishonorable physicians to whom we wish to call attention. It is to make an effort to stop this daily increasing abuse that we write at the present time. Where, may we ask, will it stop? How far will it be allowed to go before it is made the subject of public investigation?

The great essential to the welfare of the patient is the confidence and trust reposed in the physician. What will become of this trust when the patient learns that his doctor has been giving him a quack medicine in pursuance of a bargain made with some drug company to push its wares? How long will this confidence last when the patient learns that the man she has placed next to her clergyman in her esteem is an acceptor of bribes?

This practice strikes at the very root and life of the medical profession, and every possible means should be taken to kill it in its infancy. It is the duty of the medical press to accomplish this great and extremely necessary reform; to drive out of its ranks those members of the medical profession who are unworthy to hold position in it.

It is but just to worthy advertisers in medical journals to say that only a small proportion of the manufacturers of patented and proprietary medicines resort to this method of advertising. There are a great number of manufacturers to whom any amount of praise given would fall short of what is justly due them. There are numerous high minded firms who have spent great sums in an attempt to purify or otherwise extend the usefulness of some specialty. There are a great number of drugs upon which a physician may rely in all emergencies, the prescribing of which he knows will be of benefit to his patient.

We do not wish to be understood as objecting to a physician's recommending the use of a proprietary medicine where he is confident that good results will be obtained. Far from it. It is indeed desirable that a physician should test new medicines as they are put on the market. Without this there would be a complete halt in the advancement of pharmacy as a science.

We regret to state that, because of the large space necessarily occupied by the proceedings of the Pan-American Congress, we were compelled to omit several of our regular departments.

NATURAL AND ARTIFICIAL DRYNESS OF CHAMPAGNE.

Natural dryness and the smallest percentage of alcohol constitute the purest and most wholesome champagne, as compared with artificial and spirituous dryness, which admits of a higher percentage of sugar in the wine, while giving a dryer but false taste, as is the case with several of the so-called "brut" wines. By chemical analysis of Prof. R. Ogden Doremus, G. H. Mumm & Co.'s Extra Dry contains, in a marked degree, less alcohol than other prominent brands, and he recommends it, not only for its purity, but as the most wholesome champagne.

Bonfort's Circular, the authorized organ of the wine trade, of January 10, 1893, says: "Custom House statistics for 1892 show G. H. Mumm & Co.'s Extra Dry far ahead of all its competitors, its importations aggregating 75,880 cases, being more than one-fifth of all combined, and over 9,000 cases more than any other brand. While words tell, statistics prove, and the best evidence for unexcelled quality, purity, natural dryness and wholesomeness that can be produced, is given by the success of this famous wine."

G. H. Mumm & Co.'s Extra Dry of the excellent vintage of 1889 is attracting great attention for its natural dryness, purity and quality.

GAILLARD'S MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

ARTICLE I.

OPERATIVE TREATMENT OF KNEE JOINT DISEASE.

By DEFOREST WILLARD, M.D., Clinical Professor of Orthopædic Surgery, University of Pennsylvania, Surgeon to the Presbyterian Hospital, etc.

It is hardly necessary to state that the mechanical treatment of knee joint disease is an essential condition to success both before and after operative measures. This mechanical protection of the joints is to be begun in the very inception of the disease, and is one of the surest preventatives of suppuration in a great majority of cases, entirely superseding all necessity for operation. These mechanical measures should include absolute rest, protection and fixation of the joint and the avoidance of weight bearing upon the limb, by the use of crutches, either axillary, perineal or ischiatic.

A large number of neglected cases, however, will demand some form of operative relief.

The operative treatment of tubercular knee joint disease may be divided into:

I.—Tenotomy, with fixation.

II.—Removal of serum.

III.—Removal of pus accumulations and degenerated tissues, inside and outside the joint.

a—Aspiration
b—Incision and drainage;
c—Erasion;
d—Excision; and,
e—Amputation.

IV.—Hypodermic injections of anti-bacillary substances, as iodoform, chloride of zinc, etc., etc.

V.—Removal of late deformity:
 a—Tenotomy;
 b—Forcible extension with tenotomy;
 c—Osteotomy; and,
 d—Partial or complete excision.
VI.—Treatment of posterior displacement.

I.—Tenotomy with fixation.

In children under ten years of age, in fact, under twelve years, it is especially important to preserve the epiphyseal line as long as possible in order to secure the greatest possible growth of the limb; conservative surgery, therefore, in this class of cases, is to be carried to the extreme degree of mechanical treatment. This should be thoroughly insisted upon. Operative measures, when necessary, should also be conservative in character, advancing from the milder to the more extreme procedure only when imperatively demanded. In the majority of cases, even when marked flexion exists, and when evidences of induration about the joint are positive, it is wise to temporize, improving the position of the limb by tenotomy of the ham string tendon, and securing absolute immobility by plaster of Paris. By those means many cases can be cured, and, even though they advance ultimately to suppuration, much time is thereby gained, with the benefit of growth.

The question of erasion will be studied under another heading, but radical measures in these young cases are especially to be deplored.

II.—Removal of serum.

The prevention of synovial effusion consists, first, in subduing the inflammation by absolute rest in bed, a posterior splint, slightly flexed at the knee; ice bags, or the continual dripping of iced water, and by other antiplogistic remedies. Presuming that absorbents, blisters and counter irritants to produce absorption have proven unavailing, the question of tapping the joint should be considered. It is important to do this before suppuration takes place.

Aspiration for serous effusion, if performed in a thoroughly antiseptic manner, rarely gives trouble; yet inflammatory conditions, and even deaths, have followed this operation. An aspirating trocar of medium size may be carried into the anterior part of the joint. Should the fluid be clear, rest and fixation should be continued, and the patient kept recumbent with a pulley extension weight upon the limb. Should re-accumulation take place, the operation may be repeated as long as only serum is drawn. When pus is definitely determined, or when the symptoms point to its formation, other methods should be considered.

In the acute cases, such as are above described, the diagnosis of formation of pus is not difficult; but in chronic cases which are slow in progress, and probably tuberculous in character, where there is great thickening about the articulation and much induration, it is not always easy to determine whether the deposit is inflammatory or purulent, or whether it is the thickened and gelatinous degeneration which so frequently occurs in tuberculosis.

If the deposit is of the pulpy variety, the area will be doughy and boggy. All the anatomical features of the joint will be destroyed, and the fosæ upon either side of the patella obliterated. Decided flexion will exist. Pain may not be present, and in some cases this destructive process may have advanced so far that the lateral ligaments have undergone pulpy degeneration, and partial dislocation of the tibia may have taken place. When the above symptoms are present, there is but little doubt that pulpy degeneration is present, and that operative procedures are necessary. The temperature chart and symptomatic conditions will, of course, assist in the diagnosis.

III.—Removal of pus.

a. Aspiration is of but little permanent service in the removal of pus accumulations, except for diagnostic purposes.

b. Incision.

Incision into a knee is usually for the purpose of exploration, and the surgeon, previous to etherization, should have obtained the permission of the patient, or his friends, to go forward with whatever operation may be advisable; usually it will be erasion or excision.

Simple incision is of but little service, even in cases of purulent synovitis which are acute in character. In tubercular cases, if the more radical operation is refused by the patient, incision permits the introduction directly into the walls of the abscess of thoroughly aseptic and anti-bacillary substances, such as iodoform or chloride of zinc, and the withdrawal of pus, which proceedings facilitate the destruction of the bacilli. As a rule, however, these can be introduced subcutaneously into the deposit.

Incision and drainage.

When an incision has been made and pus found, it will, of course, be followed by drainage of the parts. This will be done either with rubber tubes or with gauze packing after syringing with peroxide of hydrogen, bichloride or iodoform oil. Usually the wound, if packed for forty-eight hours and then closed by sutures inserted at the time of operation, will heal kindly. If rubber drainage is used it should not be allowed to remain long in position, as a sinus will establish itself as the tube is slowly withdrawn. The mouth of the sinus can be kept open by a small piece of tube as long as it is desirable. Of course throughout the whole treatment most rigid attention must be given to rest and fixation of the articulation. Without this adjunct all operative treatment will fail. The great difficulty is to keep a wound continually aseptic. Care should be taken to allow as much iodoform oil as possible to remain in the joint at each dressing. When the discharge is long continued, and the patient refuses further operation, the antiseptics must be changed every three weeks, as the tissue becomes accustomed to their use.

c. Erasion.

What classes of cases are suitable for erasion, and which should be reserved for excision?

These are exceedingly important questions, and the answer is frequently impossible to be determined until the exploratory incision has been made.

Erasion is especially indicated in the pulpy form of degeneration. In cases where the involvement of the articulation itself is greater than that of the bone, in children under twelve years of age, where there is a prospect that by adopting this measure, shortening of the limb will be prevented, and in cases where the foci of disease are few and small. In all these cases, removal of the diseased hard and soft parts may be performed with confidence, and most excellent results will be obtained.

To be of service, the operation of erasion must be very perfect in its character. Every particle of the degenerative material must be removed, and the knife, spoon, and gouge must be applied with vigor. The prolongation of the synovial membrane above and below the patella, wherever involved, must be taken away. When such a degree of thorough removal is possible, we may confidently hope for cessation of the disease, and, even if the limb is anchylosed, it will be of great service to the individual, since it will be but slightly shortened. In my experience, relapses are less frequent when anchylosis in the straight position has taken place than when motion has been secured.

Every care must be taken by frequent douching (especially by the use of a hollow flushing gouge) during the operation to prevent infection of the surrounding tissue.

There are two methods of dressing such a wound. The preferable one is thorough packing with iodoform gauze and then closing, with previously inserted sutures, at the first dressing. Drainage tubes may be employed in cases where it is uncertain that the entire deposit has been removed. The skin wound is closed except at the points of exit of the drainage tubes, and the cavity thoroughly washed with iodoform oil (10%) at each dressing, after washing with bichloride and with peroxide of hydrogen in order to guard against infection.

d. Excision.

When there has been prolonged suppuration, or where there are evidences of a large amount of dead bone, or where the patient has suffered from prolonged drain, especially about the age of puberty, and in the majority of adults, excision becomes imperative. Of course it is resorted to with much less frequency than in former years, since the introduction of erasion; but in the cases above alluded to it is an operation of extreme value. In children under twelve years of age it is always well to avoid interference with the epiphyseal growth as long as possible in order to prevent the great shortening of limb so frequently seen when early excision is performed. Tenotomy and fixation or eversion, as already described, will often succeed in preventing this more mutilatory operation.

If excision is determined upon the operation should be thorough; but it is not always necessary to remove the entire diameter of the bone to a point as high as the extreme foci of disease. These foci may be gouged or scraped out, thus avoiding the extreme shortening which occurs when large excisions are made.

There have been different incisions proposed for this operation. I find nothing better than the ordinary horseshoe cut, with convexity upward, or downward, with division of the endopatella. The incision should commence well upon the sides of the condyles to permit free inspection of the joint, which also facilitates drainage, and is in every way satisfactory. The straight incision, with sawing of the patella, I do not like, as union of the bone is no more probable than union of the tendo-patella, if the latter is carefully sutured. Very frequently the patella has to be removed. For removal, the straight incision offers no advantages over the curved one.

The question of drainage in excision of the knee must depend upon the judgment of the surgeon. If the wound has been thoroughly cleared and thoroughly dryed, then drainage may be omitted, the gauze packing, before described, being employed. In the majority of old suppurative cases, however, it is better to introduce a tube, at least for a few days.

The use of an Esmarch bandage renders the area of operation bloodless, and thus greater opportunity is secured for removal of all the diseased tissue; but it certainly favors subsequent oozing. Filling a wound with a blood clot, as advocated by many surgeons, I have not found to hasten union.

The question of fixation of the excised ends has been the subject of much controversy. The use of ivory or steel nails, wiring, kangaroo tendon, or silk work sutures, and various other methods, have been advised. For myself, I prefer to depend upon the external splint entirely, believing that the methods mentioned do not favor union, and that their only recommendation is to secure rest of the parts. This can be done by other means; therefore, I apply immediately a plaster of Paris cast. Plaster of Paris necessarily becomes soiled by the oozing of blood and serum, but in itself it is so much of an antiseptic that it will remain sweet for a long time, and decomposition will not take place for a number of weeks. When removal is necessary, the splint can be slit into anterior and posterior halves by sawing down either side, and the cap can be removed without disturbance of the limb.

When partial healing has taken place a second cast can be applied, made strong anteriorly, through which a large lateral and posterior window can be cut for dressing purposes.

Arched iron strips surrounding the joint and fixed by wide gypsum enclosures of thigh and leg are convenient for subsequent dressing, but do not hold the joint as perfectly in position as does the simple encasement of plaster of Paris. The same may be said of the bracketed splint so frequently employed.

e. Amputation.

The removal of the limb in adults is, in many cases of extensive diseased joints, the wisest procedure. In any case of doubt, an exploratory incision into the joint gives the opportunity either for an excision or an amputation.

IV.—Hypodermatic injections of anti-bacillary substances.

My experience with this method has not extended beyond fifty cases, too small a number to draw any conclusions of value. I am still testing it carefully, and while I have had excellent results in cases treated early, yet in this same class of cases I have also had good results without this procedure. The curative effects of this measure, therefore, are still uncertain, as far as I am concerned, especially as I always employ in addition all the mechanical measures so necessary for success. I have always been extremely careful to secure the most absolute aseptic condition of person and instrument, yet suppuration has followed in a number of instances; probably it would have occurred under any form of treatment. Rise of temperature, pain, etc., have arisen so speedily that I cannot but feel that the disturbances have been due to the injection. The objections are that it is painful, and a source of great alarm and distress to children. Thus far I have had no cases of iodoform poisoning, but a certain per cent. will doubtless occur.

V.—Removal of late deformity:

1—Tenotomy;
2—Forcible straightening;
3—Osteotomy;
4—Wedge-shaped excision.

1. Tenotomy.

For the correction of flexion without anchylosis, even with slight posterior displacement, tenotomy of the ham string tendons is the best operation in the young, since, if accompanied with subsequent fixation, with gypsum, it will in the future give an excellent position of limb, often without anchylosis. Opportunity is thus given for the lengthening of the bones by growth. In performing tenotomy, care should be given to avoid the popliteal vessels and the perineal nerve. Where there is thickening or contraction of the connective tissue in the popliteal space, an open incision is desirable rather than a subcutaneous one, as much less risk is thereby incurred. With asepsis, good results can be obtained in nearly every case. Few surgeons feel safe in cutting blindly in the popliteal region, and with improved methods of technique the open plan will in chronic cases be more satisfactory.

2. Forcible straightening.

Forcible extension should be applied with great caution in the majority of cases, even if there is false anchylosis, lest posterior displacement be produced or inflammatory symptoms be aroused. Manual extension is by far the safest plan, and should be performed after subcutaneous or open section of the ham strings. The contracted tissues should be slowly stretched and torn until the limb can be brought to a straight position, where it should be retained with a fixed dressing of gypsum.

Forcible instrumental replacement is also very effective.

The cases best suited for operation are those in which indications of tubercular infiltration and thickening about the articulation are minor in degree. In cases where there is much tuberculous deposit it is very dangerous to arouse fresh inflammatory conditions, lest rapid degeneration and suppuration take place.

I have recently operated upon a number of the first described cases in this manner, with unusually good results, without pain or inflammation, and with subsequent anchylosis, thus securing an excellent walking position. This result I largely attribute to the absolute immobility secured with plaster of Paris and the retaining of this immobility until anchylosis has taken place; then compelling the patient to walk upon crutches from six to nine months afterward, and then fixing the knee joint by apparatus for a year or two to prevent relapse.

3. Osteotomy.

When there is anchylosis with deformity at a right angle, osteotomy is not advisable, since the angle at which the fragments of the femur are placed is so great that it is not likely to be a useful weight bearing member. Excision in this case is the better operation. If the angle of anchylosis is moderate, however, osteotomy of the femur above the condyles may be performed with advantage. Rectification of the deformity and subsequent fixation with gypsum until thorough union is established will give a most useful limb.

It is well in these cases, as in all other operations for the rectification of knee joint deformity, to prevent walking for a long period of time, and to protect the joint from traumatism for a number of months afterward, as relapse is very common. Osteotomy is certain to give good results without suppuration if careful cleanliness is enforced.

4. Excision.

Excision, more or less wedge-shaped, is indicated in right angled deformity, in all cases where the deposit about the knee is great, and the anchylosis bony. The method of making the section will vary with the surgeon's ideas, and his eye must decide upon such section as will bring the bone to a degree of very slight flexion, rather than that of hyper-extension. In regard to fixation of the fragments, the same remarks will hold good as in cases of ordinary excisions. If thoroughly and cleanly performed, immediate closure and fixation can be secured. An Esmarch bandage assists in the rapidity of the operation, and its early removal will permit the oozing to cease before the wound is closed.

VI.—Backward displacement.

I know of no mechanical method for the gradual relief of backward displacement which is at all satisfactory. Such a condition necessarily indicates that the ligaments have been more or less destroyed, and as the posterior thigh muscles are stronger than the anterior, besides being placed in much better position for mechanical action upon the bones, slow yielding in this direction must occur. I have seen numerous most elaborately constructed splints, which were models from a mechanical point of view, but which were absolutely worthless as far as any effect upon the bones was concerned, since the tissues in the popliteal space become so sensitive under slight continued pressure that little good can be accomplished.

Occasionally double extension, long continued, will partially draw the leg forward upon the femur. Traction should be made in the flexed position upon the lower leg with adhesive strips and weight and pulley, while a well padded band presses behind the head of the tibia and is attached to a cord passing over a ring in the wall or ceiling, with weight adjusted carefully to the endurance of the tissues to draw the displaced tibia forward. It has succeeded to only a slight degree. Wedge-shaped excision with section of the ligaments answers best, but no more bone must be sacrificed beyond the actual amount of diseased tissue that is just sufficient to relieve the deformity.

Conclusions. I.—Mechanical treatment by rest, fixation and crutches, either axillary, perineal or ischiatic, is absolutely essential, both before and after operation.

II.—In children under twelve years of age, conservative measures should be carried to the extreme, and all operative procedures should tend to non-interference of the epiphyseal line for as long a period as possible. In these young cases, therefore, tenotomy with subsequent fixation should be the primary procedure, to be followed by erasion, when necessary, and by excision only when life is absolutely threatened.

III.—In children from ten to fifteen years of age, conservatism should still be the rule, although the dangers from a shortened limb subsequent to operation are not so serious after growth is completed. In adults, operative procedures should be early, but more radical in character, erasion still being preferable to excision, except in serious degenerative cases.

IV.—Amputation in children should be employed as a dernier resort. In adults with extended disease it is often a wise procedure.

V.—The injection of anti-bacillary substances, both extra and intra articular, offers hope of relief ; but this method is yet in its experimental stage.

VI.—After the subsidence of all inflammation, the late deformity should be overcome first by simple measures, as tenotomy, with forcible replacement, excision, rarely by osteotomy.

ARTICLE II.

THE TREATMENT OF EPITHELIOMA AND THE CHANCROID ULCERS BY TOPICAL APPLICATIONS—PRINCIPALLY OF LACTIC ACID.

By N. L. NORTH, M.D., of Kings County.[1]

At a meeting of the Fifth District Branch of this Association, held at Port Jervis, Aug. 27, 1889, the late Dr. W. B. Eager read a paper on "Some Observations on the use of Concentrated Lactic Acid."

The short paper I have now to offer will be the report of cases, with observations thereon, growing out of treatment adopted in consequence of the suggestions of Dr. Eager's paper.

1889.—Mrs. B., the widow of a young physician who had early succumbed to phthisis pulmonalis, and, like many another in the profession, who for the sake of appearances had lived up to, and a little beyond, his income, and left his wife but a small life insurance and a pretty large family, which she was trying to support by "going out nursing." Her difficulty dated from the birth of her last child. She complained principally of excessive leucorrheal discharge of a muco-purulent, sometimes bloody, character. Examination showed a large, somewhat indurated os-uteri, with a notch or fissure upon one side, containing a growth of a spongy, irregular mass of abnormal tissue, of a suspicious, although not as yet of a malignant character. The cervix was contracted upon that side through inflammatory induration, causing a tilting of the neck of the uterus to the side affected. Of course the proper treatment for the case would have been to remove the fissure and its contained abnormal growth—bring the divided parts into coaptation and retain them with sutures, etc., etc. But as that would necessitate a certain time in a hospital and a certain amount of means to back it, which was deemed by the patient an impossibility, with the aforesaid family to support, I thought it a good case to try the effects of the lactic acid, which was applied from time to time; as often, in fact, as she could catch an opportunity between her nursing cases, with evident good result. The growth lessened with every application of the acid, and in the course of some months was entirely removed.

The muco-purulent discharge became less and less, and, finally, simply of an ordinary leucorrheal character, while the pains of the back, limbs and loins have mostly ceased. She has continued her occupation and is now, after four years, in good health.

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[1] Read at the meeting of the New York State Medical Association held at Mott Memorial Hall, Oct. 10, 1893.

1890.—Mrs. M., a married woman of about 45 years of age, expecting her menopause, was seized with a gradual attack of cystitis, which, having become severely acute, I was called. A careful general examination showed, in addition to the cystitis, uterine disease of an undoubted cancerous character. The patient was very "nervous," and greatly frightened lest she should be told of something serious in relation to her disease. She feared a cancer, yet would not be told of the nature of her complaint. She was horrified at the thought of a hospital or of an operation. A plan was adopted temporarily of a non-committal palliative character, and the lactic acid was applied tentatively to the diseased organ as far as was practicable in the case. It was evident that the growth was more internal than upon the os-uteri. The neck and mouth of the organ were drawn inward like the retraction of the nipple in mammary cancer.

I applied the lactic acid, on cotton wound upon the uterine applicator, carrying it well up into the os and cervix, using it every day at first, then every second day, giving at the same time salol in large doses, in connection with morphine for the cystitis. After a few weeks of treatment, with a decided improvement in the symptoms, she expressed a desire for a change, and it was decided that she should try the country at a nearby place for a week or ten days, the family to notify me when she should return.

Some weeks elapsed, when I called to inquire and was informed that Mrs. M. was "dead and buried." Naturally expressing surprise, I was told that upon advice of friends the patient, on her return from the country, was induced to try a "specialist," who, when called, expressed great indignation at the course of treatment I had pursued, and advised immediate operation—with the result stated.

I was not informed as to the character of the operation—whether amputation of the cervix—an operation which could certainly do no good in a case of the kind—or whether an attempt was made to remove the entire uterus. Certainly it was an improper case for hysterectomy, as there could be very little doubt of the involvement of the bladder, at least in the diseased condition.

1891.—Mrs. B. A case of cancer of the os and cervix uteri. When called, and after making a diagnosis, I felt great desire to try the lactic acid; but the case seemed a proper one for removal of the uterus, with the hope of a complete recovery, so I recommended her to my friend and colleague, Dr. L. S. Pilcher, who, after a careful examination, advised that she be taken to the Methodist Episcopal Hospital in Brooklyn, where, in due time, Professor Pilcher successfully performed the operation of vaginal hysterectomy.

The patient made a fairly good recovery, and was for a few (six to eight) months in a comfortable state of health, when the disease reappeared in the surrounding parts, and rapidly proved fatal.

The next case, as regards the uterine disease, presented symptoms practically the counterpart of the last given.

1893.—Mrs. E. consulted me for a severe attack of sciatica. A general examination of the age, history and condition of the patient resulted in the discovery of the fact that she had a cancer of the uterus, involving the os and cervix. Evidence was present of the disease having been in progress for several months, and it was rapidly advancing toward the fundus of the organ by way of the mucous membrane. The surrounding tissues and glands seemed not to be involved. I thought it a good case for operation, and advised a hospital with that end in view, when I was met with an emphatic refusal. She stated in the most positive terms that she would neither go to a hospital nor submit to a surgical operation, saying that she had known of several cases, and among them recently one of her own particular friends, who had been taken to a hospital, had been operated upon, and died. She said if she had a fatal disease she would die at home

Under the circumstances, I commenced using the lactic acid, applying it to the more external portions of the growth, freely, in the concentrated form, upon the cotton withe, and after curetting thoroughly the internal os and cervix, carrying the applicator well up into the uterus as far as the abnormal growth appeared to extend. I made the application every day for a time, then twice a week, once a week, once in two weeks, and once a month. Improvement commenced from the first. The growth shrank and appeared smaller and smaller with every repetition of the treatment, and when last seen, about a month ago—now some eight months since the first application of the acid—the uterus presented the appearance of absolute health, the discharges had all disappeared, the woman was gaining in flesh, improving in appearance and was cheerful and happy.

The following is one of a class of non-malignant growths, which, nevertheless, is prone to recur or return and give the patient and practitioner a great amount of bother, to say the least:—

Mrs. C.—Disease, caruncle of the urethra, of many years' standing. The growth was continuous around the entire mouth of the urethra, extending well up into the canal. "Excision," repeated cauterizations, astringent powders and lotions had been repeatedly resorted to and still the thing returned, not an unusual history in these cases where the growth is anything more than a polopoid subsersile tumor which can be easily tied or "snipped off." It occurred to me that the spongy, erectile character of the growth would perhaps *absorb* the lactic acid, which seems to have an affinity for abnormal tissues, and so become disintegrated under its use. The first application proved the supposition at least partially correct. The spongy mass gradually assumed a brownish color, and shrank, under the use of the acid, to a small point. Time enough has not yet elapsed to know whether the disease will again return.

Mrs. M.—A case of well developed cancerous disease of the uterus, involving the bladder, the rectum and the parametrium generally. Vaginal injections of a solution of lactic acid corrected the fœtid discharge to a great extent and appeared to give relief to some of the more serious symptoms.

Mr. S., an old gentleman of generally good health, showed me, with some alarm, a curious abnormality upon his arm of about a half an inch in diameter, circular in shape and raised above the surrounding healthy skin. It was a growth of pinkish spongy tissue, was very sensitive, and bled easily when touched. It had a suspicious appearance, and the first question asked of me was, "Is it a cancer?" I produced my lactic acid bottle and made a free application—the acid does not in the least affect the healthy tissue, except slightly on the mucous membrane, so that in a situation like this it may be poured freely upon the part you desire to be rid of. The tumor soon assumed a brownish appearance and gradually shrank in size as we looked at it. A few applications destroyed the growth entirely, and a normal covering of healthy skin soon took its place.

Miss J., a woman of advanced age, in the Brooklyn Methodist Old People's Home, showed me an ugly sore on the bridge of her nose, which she said was for many years only a wart, and gave her no trouble, but which had recently begun to ulcerate and was now giving her pain and troubling her greatly. She was the more anxious about it because those near her complained of a disagreeable smell. The sore gave all the indications upon examination of the *rodent ulcer*. In this case I again had recourse to the lactic acid with the result of correcting the dysodia and arresting, at least, the process of ulceration. I make the application by wrapping cotton or lint about a wooden toothpick, and with that well saturated in the acid I rub it into the ulcer with force enough to break up the crusts, and when the acid has thus been in contact with the morbid mass for a little time a considerable discharge will set up of a brownish bloody liquid which will gradually cease and a kind of scab form which appears to check the ulcerative process for several days. On some occasions I hasten the scabbing process by covering the whole surface of the ulcer with powdered nitrate of lead, which appears to add force, at least, to the deodorizing effect of the dressing. This case is still under treatment

I have used the lactic acid in a number of cases of uterine and skin diseases of both the malignant and non-malignant type, with considerable satisfaction—notably upon a severe case of lupus, which has been coming to me off and on for a number of years. Enough cases have been outlined to indicate the class of diseases which may be treated with lactic acid with probable benefit. Suffice it to say that it would seem to me that the remedy *ought* to be put to a further test of its merits, particularly in cases of malignant disease in which operative proceedings cannot be had, as also in those cases—and unfortunately they are numerous—in which operations must of necessity prove unsuccessful.

Surgical operations which are successful only in the operating room are not wise. They do not, I am sure, advance the interests of true surgery, nor yet give permanent popularity to, nor advance the welfare or usefulness of, the individual surgeon.

One word more: The action of lactic acid when applied to abnormal growths is peculiar; as has been said, it appears at first to be absorbed by the diseased growth, while it has very little effect upon the normal tissue. There would seem to be a kind of endasmosis and exasmosis going on.

The remedy is applied, and if watched for a moment it seems partially to disappear. After a little more time a liquid of a different color, (brownish) will appear, in a larger quantity than that which was applied.

I wish also to emphasize the fact that lactic acid is *not* a caustic or escharatic; it does not produce an eschar which covers up the malignant process while the diseased action goes on beneath, but seems to penetrate the abnormal cell and change its character, and so holds out to us the hope that it, or something like it, may soon be discovered and used which shall penetrate the malignant mass deeper than the mere caustic—deeper even than the surgeon's knife—and so, reaching the germ of the abnormality, prove at once destructive to it—the germ—and to the malignant outgrowth of which it is the origin, the cause.

ARTICLE III.

AN ADDITIONAL NOTE ON NEPHROTOMY AND NEPHRECTOMY.[1]

By E. D. Ferguson, M.D., Troy, N. Y.

Since my report of cases of renal surgery at our last meeting, I have operated four times upon three patients, and the methods pursued and the results obtained have sufficiently differed from my former experience to induce me to report them.

In nine operations of nephrotomy or nephrectomy,no instance has occurred in which I have been able to certainly recognize tuberculosis as a cause, though in only a part of the cases was the evidence distinctly negative, while, on the other hand, pulmonary tuberculosis was present in one case. Renal culculi existed in but one case. The absence of these common causes of renal disease was notable. The origin of the pyelitis in each instance was by the propagation of simple inflammation from the bladder through the ureter to the pelvis or substance of the kidney. The origin of the cystitis was not clear in all of the cases, but in the main was due to urethral disease. In one case it was apparently due to an injudicious, and probably non-aseptic sounding of the bladder. In this case it was evident that lithuria had been the sole pathological condition present and that it had existed for some time without producing cystitis or any turbidity of the urine until shortly after the instrumentation referred to above. The symptoms of lithuria had recurred from time to time but had failed of recognition by the physician who introduced the sound.

In my former cases of nephrotomy I had depended, for the purpose of drainage, upon the use of rubber tubes, allowing the wound through the superimposed tissue to close around the tube as rapidly as it would, or even hastening its closure by means of sutures. The trouble and discomfort connected with the use of these tubes and the probability of injury being done to the renal pelvis by them and thereby inducing suppurative nephritis where pyelitis alone existed, seemed to obtain in certain of my cases and led me to adopt the open method. This procedure consists in making a *free* incision through the renal substance so as to communicate thoroughly with the distended pelvis and then packing with gauze, simply from time to time reducing the size of this packing so as to allow only a gradual reduction of the wound to a sinus. The effort has been rather to keep the wound free, than to hasten its reduction in size. In this way the changes in the renal pelvis are kept under observation and the formation of pockets rendered less probable.

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[1] Read at the meeting of the New York State Medical Association, Oct. 10, 1893.

The first case was that of a man between thirty and forty years of age who had contracted a cystitis from non-venereal causes, and after about two years developed a pyelitis of the right kidney. His protracted illness had produced serious inroads upon his general health, and the continued presence of the cystic trouble rendered the outlook even with operation very grave. Still the septic condition due to the pyelitis was so profound that I offered a nephrotomy, which was accepted and performed in September, 1892. The renal structure seemed to be so sound, and his weakened condition precluding the idea of nephrectomy, the operation was limited to that of simple nephrotomy; even this procedure was attended by grave symptoms.

After the operation he improved for a time, gained sufficiently to be able to be about his room, and was, in fact, quite comfortable, when he began to have a series of septic attacks which I was inclined to ascribe to the imperfection of the drainage, but which I now consider were due to the effect of the drainage tubes producing injury to the lining of the renal pelvis, thus inducing a series of renal abscesses. All that had been gained was now lost, and it became manifest that a fatal issue was near at hand. In June of this year, in spite of the immediate risk associated with any operation because of the extremely feeble condition of the patient and in disregard of the small probability of a complete cure on account of the persistence in a modified degree of the original cystitis, it was decided to remove the offending organ. The separation of the kidney from its surrounding tissues was readily accomplished, but the unlocking of a pair of forceps and the slipping of one of the primary ligatures, subsequent to the excision of the kidney, was a serious accident, for although promptly controlled, the loss of blood was necessarily considerable. His condition for some time was critical and at times a moderate degree of albuminuria without cysts existed; still, after a time, he began to improve, and though unable to use the right leg comfortably and freely in walking on account of the flexure of the thigh on the body during his confinement to the bed, at last accounts, two or three weeks before the date of this communication, he had so far recovered as to be able to go downstairs and about the house.

One curious circumstance connected with the events subsequent to the operation misled and puzzled me. As he resided at quite a distance I could only see him occasionally. The wound, as already stated, was dressed with gauze, it being purposed to keep it open until the bunch of ligatures rendered necessary by the accident mentioned above should separate and be removed. When I saw him about two weeks after the operation I found a sinus of a tortuous character leading to the lowest portion of the wound and which I was unable to explain. The ligatures failing to come away, I again saw him in about three weeks, and on separating the ligature loops from the pedicle I found that one long end of a ligature had been pushed by the gauze deeply into the wound and had become buried by the process of healing into a tortuous and looped position, in such a way that it was quite troublesome to effect its removal. After the removal of this ligature the sinus promptly healed and at last accounts the patient was comfortable and hopeful.

The next case occurred in a multiparous woman, about thirty years of age, and who was about three months advanced in pregnancy when I saw her. She had been having several epileptoid attacks daily for some days, had a moderate pyrexia, and gave a history of cystitis of uncertain origin, and of some weeks' duration. Examination showed in the right renal region a movable cystic tumor of a size sufficient to contain nearly a quart of fluid. This was diagnosticated as a movable kidney with torsion of the ureter and retention of urine, as it was found to increase in size, and again diminish with an increased vesical discharge. To confirm the diagnosis some of the fluid was removed and was found to contain urea and a moderate amount of pus. The gestation being terminated soon after by a miscarriage, a nephrotomy was done. The incision into the dilated kidney being as free as the anatomical limits would possibly permit, the borders of the wound in that organ were then secured to the wound in the loin by a row of interrupted stitches, these being placed so deeply so as to give a good anchorage for the movable organ. The cavity of the kidney and the wound in the loin were kept tight by being packed with gauze and the patient began promptly to improve.

The epileptoid seizures became very infrequent and she was able in a few weeks to resume her household duties, which required considerable strength and implied considerable fatigue. I saw her but once subsequently, some three weeks after the operation, and the impression of the kidney then gained was that it had rapidly contracted to about its normal proportions. At last accounts she was comfortable, the vesical urine was normal and the packing had been omitted for some weeks, still a sinus continued to discharge a goodly amount of healthy appearing urine. It seems to me desirable that the sinus should continue, but no special efforts have been made to maintain it, aside from small strips of gauze inserted for a short distance.

The remaining case was also in a woman, about thirty years of age, married, but never pregnant. She had suffered for a long time from cystitis, which had eventually impaired her general health. After having been confined to her bed for a long time I was requested to see her with a view to relief of the vesical symptoms. I found her so enfeebled that a formidable operative procedure would imply a serious immediate risk. The bladder had become very much contracted, and there was a tumor in the left renal region which was regarded as undoubtedly the kidney distended with pus. There were also signs of incipient phthisis in both apices of the lungs. A careful review of the history of the case, the details of which are not necessary for our present purpose, led to the conclusion that the first link in the chain of the morbid process had been a vulvo-urethral inflammation, then a cystitis, then urethritis, next a pyelitis, and finally, though probably an independent trouble, incipient pulmonary changes. As the patient resided 200 miles from my home, and as I was about to leave home for an absence of three weeks, I could not undertake to determine the simple or tubercular character of the inflammatory process in the bladder, the kidney, or the lungs.

The vesical symptoms were so troublesome that I decided to establish a vesio-vaginal fistula, thereby draining the bladder and placing it at rest. This is a procedure which in many cases is of great value, particularly when we seek to protect a remaining kidney from consecutive pyelitis. The cystotomy was done and no evidence of tubercular ulceration was found.

On opening the pelvis of the kidney and evacuating eight or ten ounces of pus, a careful exploration of the kidney was made with negative results aside from the pyelitis.

Since the operation I have not seen the patient and though my last account, received about three months after the operation, was very gratifying so far as the fact that the patient had been relieved, and had gained in strength and flesh was concerned, yet certain of the details of the report led me to fear that my instructions as to maintaining a free drainage by gauze packing had been rejected on account of her comfortable condition, and I presume, if the pulmonary trouble does not furnish a contra indication, that she will need an operation to re-establish drainage or to remove the kidney.

One of the most important reflections connected with these cases relates to the problem of drainage. I am now satisfied that when we are dealing with a pyelitis of considerable duration and not due to renal calculus, we should maintain the drainage by means of gauze, and that the incision through the kidney structure should be sufficient to give thorough drainage to not only the pelvis of the kidney, but also to any diverticulä which may exist; and this should be maintained until it is probable that good drainage through the ureter has again recurred, or that a small external sinus has become established which will serve that purpose.

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FRENCH TRANSLATION.

GASTRIC MANIFESTATIONS ASSOCIATED WITH TUBERCULOSIS.

Delivered at the Charité Hospital by DR. POTAIN, Professor of Clinical Medicine at the Medical Faculty of Paris; Physician to the Paris Hospitals.

Some of you may have noticed a woman, recently admitted into our wards, whom I have just examined very carefully, although there is apparently no difficulty as to the diagnosis.

The history of the case is very simple indeed, the patient presenting the ordinary symptoms of pulmonary tuberculosis.

She is 32 years of age, without any hereditary predisposition to tuberculosis. There is no history of this affection in her family.

In childhood she never showed any scrofulous manifestations, such as glandular enlargements, etc., and until the age of 27 she had never exhibited any of the signs of tuberculosis, but had always enjoyed excellent health. Five years ago she had an attack of small-pox, of which she bears obvious traces. At the same time she developed certain pulmonary manifestations about which we can obtain but little information and which were probably of considerable gravity, seeing that she had a protracted and tedious convalescence.

Since that time the patient, who until then had always been very robust and active, began to complain of constant indisposition, and it looks very much as if in this case the attack of small-pox had prepared the soil for the development of the affection from which she is at present suffering. As you are aware, attention has already been called to the relationship between tuberculosis and small-pox by my colleague, Dr. Landouzy, who believes that every patient who recovers from an attack of the latter disease acquires a very marked predisposition for tuberculosis and will probably contract this affection in afterlife.

From the time of her recovery the patient became the subject of frequent and persistent colds, accompanied by inveterate laryngitis (from which she is still suffering); she gradually lost her appetite, became emaciated and very weak. She has grown markedly worse during the past month. Anorexia is complete and she has rapidly lost flesh; she began to suffer from night sweats with a frequent and paroxysmal cough. On looking at her to-day, her thin, emaciated face and the profound state of depression into which she has fallen, are sufficient, in the absence of any physical examination, to show that she is suffering from pulmonary tuberculosis. On examination there is almost absolute dullness over the upper two anterior intercostal spaces on the left side. The respiration is blowing, with moist râles, indicating that the left apex is the seat of tubercular processes, with breaking down of the lung tissue.

The history of the patient is therefore extremely simple, the symptoms are perfectly characteristic, and no doubt is permissible about the diagnosis. The case is a very interesting one, however, owing to the presence of two important phenomena to which our attention was called by the patient herself. I am referring to diarrhœa and vomiting. These disturbances of the alimentary tract are not rare in tuberculous patients; as a matter of fact, they may be regarded as constant complications of tuberculosis, but they are so marked in the case under consideration that I shall endeavor in this lecture to discuss their pathogeny, nature and treatment.

In the case before you the most prominent symptom is vomiting. The ingestion of food, whether fluid or solid, is immediately followed by a fit of coughing of variable duration, culminating on every occasion in the expulsion of the contents of the stomach. Nutrition is accordingly seriously interfered with, as shown by the extreme emaciation of the patient. The first indication, therefore, is to arrest the vomiting, but, before doing so, we must endeavor to determine the cause of this.

It is now a long time since it was noticed for the first time that vomiting was a frequent complication of tuberculosis. In 1737, Morton wrote: "A tendency to vomiting after coughing is pathognomonic of phthisis."

The relationship between the two has since been recognized by all writers on the subject, but it was not very clear how the vomiting was brought about. Without entering into the history of the numerous discussions which have taken place on this subject, we may admit that the vomiting associated with phthisis is dependent on three causes, viz., (1) subacute inflammation of the stomach, *i.e.*, subacute gastritis; (2) dyspepsia due to general debility; (3) constant or intermittent irritation of the vagus, apart from all pathological change in the stomach.

The gastritis of tuberculosis was first described by Broussais. It was again referred to at a later date by a more conscientious observer, viz., Cruveilhier, who pointed out the error into which one might be ied with regard to gastric affections by the post-mortem changes which take place in the organ. This subject was further discussed in a recent and very interesting contribution by Dr. Marfan, to whom I am indebted for the pathological data referring to our subject.

It is usually in the advanced stage of pulmonary tuberculosis, in the stage of cavity formation, that the first symptoms of gastritis make their appearance. The patient, who until then had only complained of transient or moderate anorexia, more marked sometimes in respect to certain foods, now begins to suffer from complete loss of appetite. Digestion, which was somewhat sluggish before, becomes painful; in some cases extremely so, but it is seldom attended by any pyrosis or flatulence as was pointed out by Dr. Marfan, and as I have myself repeatedly observed in the cases under my care. The epigastric region is tender on pressure, tense and frequently retracted. Splashing cannot be elicited on account of the contraction of the abdominal muscles, but dilatation of the stomach, of which splashing is a characteristic sign, is rare in these cases. The tongue is dry, red, sometimes glazed, and forms an excellent medium of culture for the parasite of thrush. One might think that all these indications of the existence of a grave stomach lesion would naturally be accompanied by vomiting. This is not the case, however, and there are many cases on record of phthisis complicated by gastritis, confirmed by a post-mortem examination, in which the patient never suffered from vomiting. When this complication is present it usually appears after food, or rather after an attempt at taking food, and it is in the middle or toward the end of a fit of coughing, accompanied by that peculiar sensation of malaise and pain in the region of the stomach, to which I have already referred, that the food is brought up unaltered with a good deal of painful retching. The clinical picture is usually completed by the appearance of another symptom, diarrhœa, which comes on as a rule at the same stage in the tubercular process. It is indeed very exceptional for the gastric manifestations to run their course in the absence of intestinal symptoms, showing that the lesions of the alimentary tract characteristic of advanced phthisis are not limited to the stomach. In view of these manifestations, the prognosis should be extremely guarded, for the case will soon terminate fatally. The terminal gastritis of phthisical patients is not amenable to treatment, and its appearance is to be regarded as an indication that the end will not be very much delayed.

The evolution of the gastric lesions present in cases of tuberculosis has been admirably described by Marfan. In the majority of cases nothing is found beyond a certain amount of hypertrophy of the mucous membrane of the stomach, the natural thickenings of which stand out with unnatural prominence, imparting to the surface of the membrane a peculiarly roughened appearance. It sometimes happens that these changes are limited to isolated portions of the mucous membrane, the remainder preserving a normal appearance. In more advanced cases, however, the surface of the thickened membrane becomes covered with polypoid vegetations resembling the formations described by Dr. Brissaud under the name of gastric polyadenomata. Lastly, when the condition has lasted for a long time, punctiform erosions are sometimes, though rarely, to be found scattered over the mucous surface, very few of them attaining the size of a pin's head. But these facts require to be confirmed by further investigation. From a histological point of view it is sufficient to say that the inflammation commences in the interglandular portions of the mucous membrane, while the secreting epithelium is only secondarily affected. It is, in fact, to quote Marfan's own words,an intertubular gastritis extending from immediately underneath the epithelium toward the muscular coat of the stomach, which, however, never becomes involved in the inflammatory process.

We have still to discuss the question of the pathogeny of the terminal gastritis of phthisical patients. Is it to be regarded as one of the manifestations of tuberculosis? Or is it a complication common to various infectious diseases? To begin with it is to be observed that the gastritis associated with the tubercular cachexia appears simultaneously with the onset of hectic fever, and hectic fever is simply the result of the absorption of septic products due to secondary infections superadded to the primary tubercular infection. Considering that, on the one hand, the morbid appearances found in the stomach present none of the characteristic features of tubercular lesions and that no tubercle bacilli have ever been discovered therein, while, on the other hand, the gastritis of phthisis closely resembles in its clinical and anatomical characters that which is sometimes observed in convalescents from typhoid fever, I am, therefore, inclined to regard these digestive disturbances as independent manifestations due to the presence of suppuration in the pulmonary cavities. Is the primary cause of the gastritis—chemical substance or living organism—transmitted directly through the expectoration being unconsciously swallowed, or indirectly through the medium of the blood? This is a question which calls for further investigation.

Although the gastritis of phthisis cannot be regarded as one of the symptoms of pulmonary tuberculosis, the same does not hold good with regard to the dyspepsia which marks the early stage of this affection, described by Marfan as the initial gastric syndroma. Whenever you are confronted with a patient suffering from cough and vomiting, which cannot be explained by the presence of any cardiac, vascular or pulmonary lesion; whenever these symptoms are associated with emaciation and but little, if at all, influenced by appropriate treatment, you may anticipate the development after a variable period of time of the characteristic manifestations of pulmonary tuberculosis. A few days ago I examined a girl who presented no symptoms beyond those of the most inveterate dyspepsia. She had been submitted to an appropriate *régime* and very conscientiously treated for her digestive troubles but without success. This aroused my suspicions, and on careful examination I discovered the presence of the early signs of tuberculosis at one of the apiçes.

It is interesting to compare the gastric manifestations of incipient phthisis with the terminal gastritis associated with the advanced stage of this affection.

The first of these early gastric symptoms is loss of appetite, but this anorexia is apt to assume various forms. In some cases the patient still relishes certain kinds of food, while in others there is complete anorexia. The patient complains of constant pain, with a feeling of weight and distension in the region of the stomach. The gastralgia is worse after meals; the stomach is distended with gases, and the patient suffers from pyrosis and acid eructations, symptoms that are very seldom observed in true tubercular gastritis. These symptoms become rapidly aggravated, and in a short time cough and vomiting, which are especially characteristic of this condition, are superadded. The ingestion of food at once excites a dry, paroxysmal cough, which usually persists until the contents of the stomach are expelled. On the other hand, the cough ceases, in most cases, immediately vomiting takes place, so that it is obviously due to gastric irritation. Digestion excites cough and cough causes vomiting; this cycle of events is absolutely characteristic of the phenomenon known as gastric cough.

The physical signs of this gastropathy are also peculiar: the tongue remains smooth and moist; there is but little tenderness on pressure over the stomach, which can be easily explored and is usually dilated. Lastly, and this symptom is not devoid of a certain importance, the patients are usually constipated.

The cause of the dyspepsia of early phthisis is not exactly known; it is evidently not due to the direct action of the tubercular virus on the stomach. Is it the result of anæmia of the mucous membrane? Marfan believes it is, but I cannot agree with him on this point. The stomach is sometimes so profoundly affected in chlorosis as to give rise to dilatation of the right heart, and yet chlorotic girls very seldom indeed suffer from vomiting. In my opinion these manifestations are more of the nature of neuro-motor phenomena without any pathological change in the stomach itself. Atony of the muscular coat of the stomach can be compared with general loss of muscular strength and debility, and as amatter of fact they often exist concurrently.

Remember, therefore, that gastric disturbances are of common occurrence both at the beginning and at the end of an attack of pulmonary tuberculosis; we have an initial dyspepsia and a terminal gastritis, differing markedly from each other in character. They very seldom follow each other in the same patient, a further indication of the pathogenic differences which exist between them. There are numerous causes of vomiting in phthisis, but cases are also met with in which the stomach is perfectly normal and the vomiting must be referred to irritation of the pneumogastric nerve.

Cases of this kind are indeed by no means rare. I reported one myself in 1861, and in 1884 I had under observation at the Necker Hospital a case of pulmonary tuberculosis in which the most prominent symptom throughout the whole course of the disease was a spasmodic cough accompanied by vomiting.

At the autopsy it was found that the left pneumogastric nerve was compressed by a mass of partially calcified tubercular glands. My observations confirm Guéneau de Mussy's statement that vomiting due to compression of the pneumogastric is especially frequent in connection with the presence of tubercular lesions in the left lung. The late Prof. Peter refers in his *Leçons cliniques* to a number of cases under his own observation, of almost incoercible vomiting due to compression of the pneumogastric by enlarged glands. It is now an established fact, therefore, that tubercular adenitis may be sufficient to account for the vomiting of phthisis.

The clinical features of these cases are well illustrated in our patient. She will tell you that she vomits on the slightest provocation after taking food, as well as in the intervals between the meals, and that emesis is accompanied or followed by a paroxysmal and spasmodic cough prolonged almost to suffocation. Under these circumstances it is only natural to suspect the presence of marked changes in the alimentary canal. On examination, however, there is a total absence of physical signs. The appetite is apparently not entirely lost, though it may be only a deceptive sensation such as is not infrequently observed in cases of this kind. In any event her tongue is clean and moist; there is no gastric dilatation, no flatulence and no pain on pressure over the epigastrium; digestion is perfectly painless if not interfered with by cough and vomiting; there is no eructation or pyrosis. It is plain, therefore, that the digestive passages are perfectly normal in this case, and when on examining the chest distinct dullness is found in the upper two left intercostal spaces anteriorly, prolonged along the left lateral border of the sternum, there is no difficulty whatever, after what I have just said, in recognizing that we are dealing with a case of compression of the pneumogastric by enlarged tracheo-bronchial glands.

The diagnosis of the exact cause of vomiting in cases of phthisis is a matter of considerable importance, seeing that both the prognosis and treatment are different according as we are dealing with the initial dyspepsia, the terminal gastritis or the pseudogastric manifestations due to compression of the pneumogastric.

In cases of premonitory dyspepsia there are three indications to attend to: you must endeavor to restore the appetite, diminish the flatulence and eructation, and soothe the pain.

The first indication is met by the administration of bitters, such as tincture of calumba, gentian, etc. For my own part I prefer the following mixture: Tincture of calumba and tincture of gentian, āā one drachm; tincture of nux vomica, fifteen minims. From five to twenty drops of this mixture before meals.

Tincture of nux vomica is undoubtedly the most efficacious remedy in cases of atony of the stomach, but it must then be administered in a small quantity of liquid and as far as possible on an empty stomach.

The vegetable bitters may advantageously be combined with pepsin or mineral acids; hydrochloric acid (two drops) or phosphoric acid in the form of the acid phosphate of lime (half a drachm), taken after meals.

Gastric flatulence is effectually combated by the administration of charcoal. In this respect it should be borne in mind that Belloc's poplar-wood charcoal is probably non-absorbent and that it is unnecessary to have recourse to such large doses as those usually administered. Small doses give equally good results, so that charcoal seems to act by direct contact with the gastric mucous membrane. For this reason it should be taken in the intervals between the meals. A good preparation to employ in certain cases is a mixture of charcoal and subnitrate of bismuth.

The third indication is to soothe the intense gastralgia. It frequently happens that opium cannot be given because it increases constipation, a very constant phenomenon in association with the initial dyspepsia of phthisis. In such cases I have recourse to the tincture of belladonna. Should this fail to give relief I resort to the administration of morphine pills.

Oxygen inhalations are recommended by my colleague, Professor Hayem, in the treatment of the anorexia and vomiting. I have myself obtained satisfactory results from this method in cases in which no benefit was derived from the use of the above-mentioned remedies. I may also mention the method devised by Professor Debove, which consists in feeding the patient through a tube. This treatment is only to be recommended in the early dyspepsia of phthisis, but only a moderate quantity of food should be administered in this way, for overfeeding has as yet given very uncertain results in cases of pulmonary tuberculosis. With this reservation the use of a tube is apt to prove very serviceable in a certain class of cases. There can be no doubt that food which is rejected by the stomach is often retained when introduced through a tube, and for my own part I always resort to this method of alimentation in cases of excessive vomiting and rapid emaciation.

The indications are much more limited in the terminal gastritis of phthisis. Bitters and mineral acids produce no effect and all we can do is to feed the patient and soothe pain. Overfeeding with meat powders and so forth usually gives disastrous results under these circumstances. The patient should have none but the kinds of food that are tolerated by his stomach. As a rule at this stage the patient should be kept on a purely milk diet, while this method of alimentation presents no special advantage in the dyspepsia of early phthisis. But even milk may be tolerated with difficulty ; it should then be given in small quantities at a time, at regular intervals, with a little pancreatine, bicarbonate of soda or lime water. The gastralgia complained of by these patients only yields to the influence of morphine. The application of blisters, the cautery, etc., over the epigastrium, may also prove beneficial by way of counter-irritation

This last method of treatment is especially efficacious, however, in cases of gastric disturbance due to compression of the pneumogastric. In some cases the effect is almost magical. There is evidently no indication for the use of drugs, etc., in such cases, seeing that the stomach is intact. The application of a blister over the part of the chest where the dullness is most marked may be useful in allaying cough and thus permitting of the administration of nourishment. This treatment was followed by considerable improvement in a case under my observation at the Necker Hospital. It is the method I intend to employ in the case before you, and the blister will be repeated in a few days if the symptoms are not rapidly relieved. The counter-irritation will be kept up with the cautery, seeing that it is the only efficacious means of allaying the patient's sufferings.—*La Semaine Medicale*.

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SELECTIONS.

ATRESIA OF THE VAGINA WITH RETENTION OF THE MENSTRUAL FLUID.

By Alex. J. C. Skene, M.D., Professor of Gynæcology, Long Island College Hospital.

This patient was brought to me by my friend Dr. Bornier, who informs me that she is nineteen years of age, of foreign birth, large and well developed, and has enjoyed excellent health until recently, but never menstruated. She came to consult him because of an increasing distress in the pelvic region, manifested by a feeling of fullness and pelvic tenesmus, with some disturbance of the function of the rectum and bladder. On examination the doctor found an obstruction in the lower portion of the vagina, about three-quarters of an inch above the hymen, and beyond this, a fluctuating mass which he rightly diagnosticated as a hæmatoma. On examination I was able to confirm the doctor's diagnosis. I found the closure in the vagina to be more of a diaphragm than a stricture. The vagina below this closed portion was normal and ample, and owing to the distension above it gave this diaphragmatic appearance to the parts. The fundus uteri could be felt above the superior strait, but the body of the uterus did not appear to be distended. Fig. 1 will show the condition of things as here described. I operated upon it in my usual method of first making a small opening in the center of this diaphragm in the vagina with the galvano-cautery, allowing the fluid to drain off very slowly.

When the vagina seemed to be emptied and the flow had all but ceased, the catheter was passed through the opening and the parts thoroughly washed out twice a day with a 2½ per cent. solution of carbolic acid. When all traces of menstrual fluid had been removed, and the water used in the douche returned perfectly clear, the patient's condition being excellent, I resolved to enlarge the opening in this closed portion of the vagina, which I did by making two incisions from the central opening laterally. I then brought the mucous membrane over the divided surfaces and sutured them so as to make a complete closure. This left an ample vagina. Having accomplished this, on making a digital examination, I found what appeared to the touch to be a partial inversion of the uterus. So positive were the signs that I felt confident such was the case, knowing that dilatation of the cervix and possibly of the lower portion of the body of the uterus produced the very conditions which might give rise to a partial inversion. Fig. 2 will show the condition of things, but when I made a speculum examination to confirm or correct my suspicions about the inversion, I found the canal of the uterus in the central portion above the cervix, which had appeared to be the inverted fundus to the touch. (Fig. 3.) This corrected my suspicions as to inversion, and at the same time demonstrated to my satisfaction the way in which dilatation takes place from the accumulation of retained menstrual fluid. It is clearly evident that the vagina becomes first distended to its utmost, that next the cervix under pressure becomes completely dilated, and finally the body of the uterus; and that last of all, if the case is allowed to go on long, the uterine ends of the Fallopian tubes become distended also.

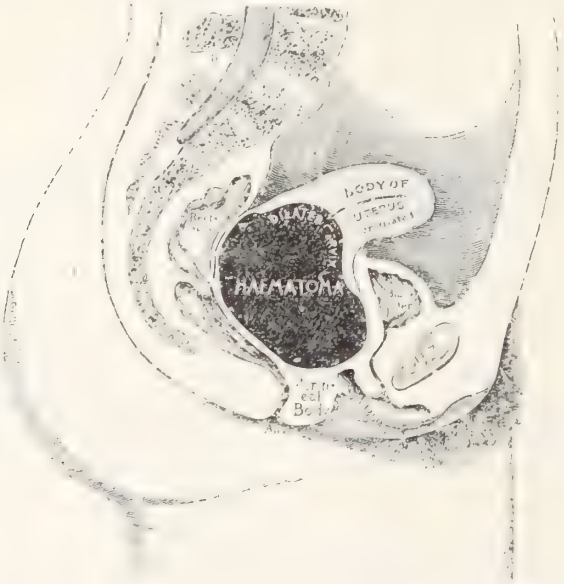


FIG. 1. HÆMATOMA FROM VAGINAL ATRESIA, WITH DILATATION OF THE CERVIX.

If this is the correct account of the way in which distention takes place, then I think it will fully explain one of the sources of danger in this affection. It is well known that in the past a large percentage of such cases have terminated fatally even after operation. Knowing this, I have given considerable attention to the subject in order to detect, if possible, the causes of danger and the best means by which they can be prevented. In brief, it may be stated that cases that terminate fatally do so either because of septicæmia or septic metritis, salpingitis or peritonitis.

The genesis of the septic inflammation is generally, in my opinion, due to the rapid decomposition of the fluid when it is exposed to the air during and after evacuation. There is some septic absorption while this fluid is flowing over the wound made to permit its escape, and from this point the septic inflammation extends to the whole mucous membrane of the body of the uterus. In case there is any dilatation and accumulation of the fluid, be it ever so little in the Fallopian tubes, the inflammation extends to these canals setting up a salpingitis, which in its turn engenders a peritonitis.

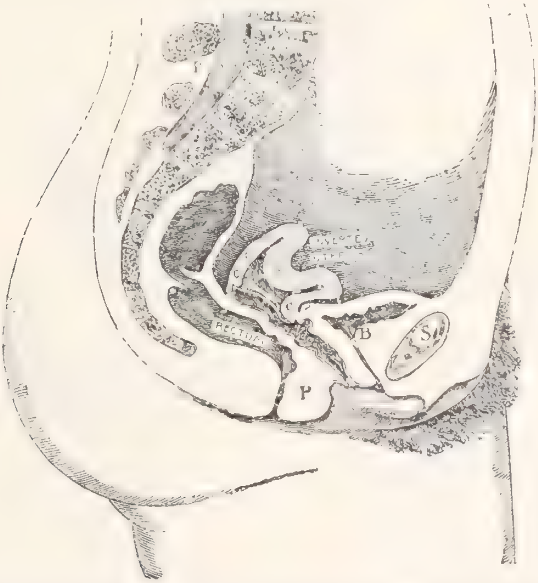


FIG. 2. APPARENT INVERSION OF THE UTERUS AFTER EVACUATING THE BLOOD.

Now, in regard to the treatment which is best adapted to the safety of the patient, to guard against the dangers which have been mentioned and the genesis of them, I may say that I entirely rely upon the slow method of evacuation through a very small puncture in the imperforate hymen, or through the diaphragm in the vagina as in the case now under consideration. I endeavor to guard against absorption of septic material by the small wound or puncture made in the obstructing part by using the cautery to make the puncture, and I believe I succeed in this. This should not be more than an eighth or a quarter of an inch in diameter, and being a cauterized wound the lymphatics and vessels are closely sealed so that absorption is impossible until the slough has separated, and by that time all the fluid can be thoroughly evacuated and the canal of the vagina and uterus thoroughly washed out and disinfected. The cautery then guards against the first, the possible inlet to sepsis, and the very slow evacuation permits the uterus and the vagina to contract to some extent at least, so that there is a smaller surface for absorption, and hence less danger from septicæmia. A thorough washing out also prevents, or at any rate lessens, the activity of the inflammation of the vagina and uterus, and so controls the inflammation wholly or to a very great extent. By the same means the Fallopian tubes, if they are at all distended, have an opportunity to expel their contents and to contract readily toward the uterus, and in this way may be protected from inflammation.

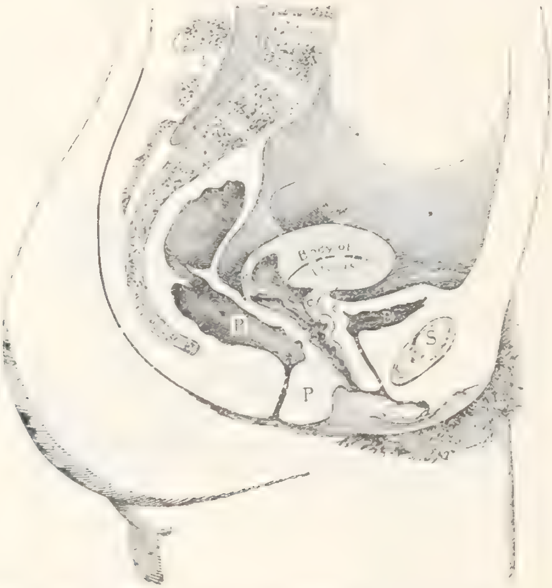


FIG. 3. CONDITION REVEALED BY FURTHER EXAMINATION. THE VAGINA AND CERVIX HAVE BEEN DISTENDED, AND ARE HERE SHOWN COLLAPSING, WHILE THE UTERINE BODY IS UNDILATED.

In all cases that I have treated in this manner I have been entirely successful, and, more than that, the patients have shown no evidence of any well marked inflammation or septicæmia. In my experience with the other method of treatment—that is, a free incision at the point of obstruction, a rapid evacuation, done with antiseptic precautions, and a thorough washing out of the uterus and vagina with aseptic solutions—I have had at least one fatal case. One other on which I operated, making the puncture, I left in the care of the attending physician, also proved fatal, and I believe it was largely due to the fact that although I intended to adopt the slow evacuation method, the doctor and patient both became somewhat weary of the slow discharge; I believe the opening was enlarged and some pressure made to evacuate the fluid, and that case proved fatal. I may say, however, that I have considerable confidence in the method which I have described. It has been equally efficacious in cases of longer standing in which the uterus was fully distended, and where, I presume, the uterine ends of the tubes were also distended to some extent.—*Brooklyn Medical Journal.*

A HAND OPHTHALMOMETER AND RETINOSCOPE COMBINED.

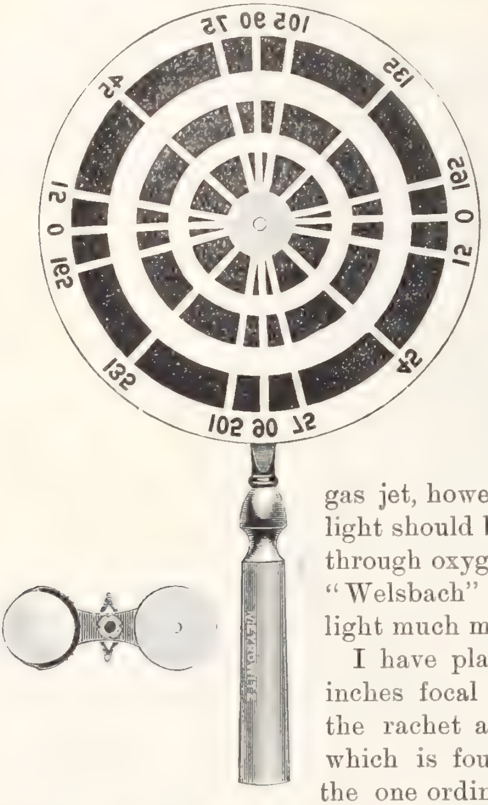
By JOHN HERBERT CLAIBORNE, JR., M.D., Adjunct Professor of Ophthalmology, New York Polyclinic.

The instrument of which the accompanying cut is a representation is a modification of Placido's disk for the recognition of astigmatism.

Placido's disk is nothing more nor less than a circular board upon which black and white circles alternate. It is perforated centrally by an aperture smaller than the one in the cut herewith shown, but quite large enough for seeing. The cut shows the alternate black and white circles, a large central aperture with numerous white lines traversing the diameter of the circle. On the back of the disk a revolving ratchet is attached in such a way that either a convex lens or a retinoscopic concave mirror may be thrown over the aperture. The cut shows the lens and the mirror detached from the disk. In the *New York Medical Journal* of June 25 and July 2, 1892, in a paper entitled The Axis of Astigmatic Glasses, I propounded the propositions that the axis of astigmatism does not occur at haphazard; that there are axes of preference both in hyperopic and myopic astigmatism and in their combinations; that the positions of preference in hyperopic astigmatism are five—namely, 90°, 105°, 135°, 75°, 45°; that the quarter of the circle from 45° to 135° is the "realm of hyperopic astigmatism"; that the positions of preference in myopic astigmatism are three—namely, 0, 15, 165; that the third of the quarter of the circle from 15 to 165° is the realm of myopic astigmatism.

It will be seen that the diametric lines shown upon the disk correspond to these axes. The figures are reversed in order that they may appear natural when reflected from the cornea.

The lens behind the disk face may be of any strength desired: it can be removed and replaced. For my part, I find a + 10 D. most satisfactory. This lens gives a fair distance at which one may examine the reflex on the cornea without coming too near the patient. At the same time the reflection is sufficiently large to enable one to see the figures fairly well. The inspection is rendered far more satisfactory by the use of cocaine instilled into the observed eye, since by the use of this drug the palpebral slit is considerably widened. Ordinary daylight may be used, and of this kind of light the reflection from a white cloud is preferable. The gas jet, however, is satisfactory, though the light should be rendered brighter than usual through oxygen mixed with it or through a "Welsbach" burner, which renders the light much more intense and white.



I have placed a concave mirror of nine inches focal distance on the other end of the rachet arm, since the concave mirror which is found on the ophthalmoscope is the one ordinarily used in retinoscopy It will be seen, therefore, that the instrument is intended as a combination of a portable ophthalmometer and a retinoscope. It is a well-known fact that the much-lauded ophthalmometer of Javal and Schiötz, while it gives the axis of astigmatism fairly accurately, gives no information as regards the character of the astigmatism. The intention of the double combination in this instrument becomes immediately evident. The axis of the astigmatism having been indicated by the reflection on the cornea, its character is declared by the retinoscopic mirror. Artificial illumination is necessary for the use of the retinoscope; hence this form of illumination will enable one to get the results of examination with this instrument in the shortest time and with the least trouble. Of course, the reflection gives no definite information in regard to the amount of astigmatism, but the retinoscope gives a fairly approximate estimate. Any instrument which measures only the corneal astigmatism must needs be more or less incorrect. This, too, sets limitations to the usefulness of the ophthalmometer of Javal and Schiötz.

The patient should look directly into the central aperture. If the vertical lines appear shorter than the horizontal, or the horizontal appear longer than the vertical—*i.e.*, are elongated—there is the so-called astigmatism *with the rule*, for three conditions are possible: First, there may be simple myopic astigmatism, since in this condition the vertical meridian is more sharply curved than the horizontal, and the image reflected from it is smaller; secondly, there may be simple hyperopic astigmatism, since in this condition the horizontal meridian is less sharply curved than the vertical, and the image from it is larger; thirdly, there may be mixed astigmatism, since in this condition there is a sharper curve in the vertical meridian than in the horizontal.

If, then, the horizontal diameter appears longer than the vertical, —*i.e.*, if the reflex on the cornea appears elongated horizontally—there is astigmatism *with the rule*, and the three possibilities are simple hyperopic, simple myopic, and mixed astigmatism.

A turn of the retinoscopic mirror will cause one of these three to declare itself. The same picture is shown by compound hyperopic and compound myopic astigmatism, but so far as the astigmometer is concerned these conditions are the same as simple hyperopic and simple myopic astigmatism. If the vertical diameter appears longer than the horizontal—*i.e.*, if the reflex on the cornea be elongated vertically—there is astigmatism *against the rule*, and one of the possibilities mentioned above exists.

Now, when the axis of astigmatism is neither vertical nor horizontal some difficulty arises. It is difficult to place the axis at 75° or 105°, 15° or 165°, but at least this much can be seen: the axis is just off the vertical or horizontal. If it be further off the vertical than 75° or 105°, or further off the horizontal than 15° or 165°, it is, in the great majority of cases, 45° or 135°, and when it is at this angle it is fairly clearly shown.

If the lesser diameter be found at 105°—which is the same thing as the greater diameter or the elongation being found at 15°—there is still astigmatism *with the rule*, and there is simple hyperopic astigmatism (axis 105°), or simple myopic astigmatism (axis 15°), or mixed astigmatism with the axes in their proper realms. If the lesser diameter be found at 75°—which is the same thing as the greater diameter on elongation being found at 165°—there is still astigmatism *with the rule*, and one of the three conditions above mentioned exists with the axes in their proper realms.

Now, simple hyperopic astigmatism hardly ever occupies the axis 15° or 165°, and simple myopic astigmatism hardly ever occupies the axis 75° or 165°, so that I do not deem it necessary to treat these conditions theoretically.

In mixed astigmatism the axis 45° or 135°, which properly belongs to the realm of hyperopic astigmatism, not infrequently is taken by the myopic axis. Let us suppose a case in which the elongation of the reflex is in the axis 45°.

It may be safely said that the possible conditions are simple hyperopic or mixed astigmatism, for simple myopic astigmatism rarely occupies this angle. Suppose it be a case of simple hyperopic astigmatism; the axis of the convex cylinder would be, of course, 135°, since the diameter of 45° would be less curved than that of 135°.

If it were a case of mixed astigmatism, the axis of the convex cylinder would be 135° and that of the concave 45°, for obvious reasons. In taking these observations it is better for the patient to look slightly outward, in order to avoid the shadow of the brow and nose obscuring the reflex on the inner side of the cornea.

The instrument is made by Meyrowitz.

10 East Twenty-eighth Street. —*N. Y. Med. Journal.*

REMOVAL OF OVARIES AND TUBES IN THE INSANE AND NEUROTIC.[1]

By Archibald Church, M.D., Professor of Neurology in the Chicago Polyclinic; Professor of Mental Diseases and Medical Jurisprudence in the Chicago Medical College; Neurologist to the Cook County Hospital, Chicago.

It is not only my privilege but my duty to express the appreciation and obligation I feel in being invited to present a topic before a society which, I think I may say without raising a shadow of opposition, is the most exclusive and erudite body of medical men in Chicago.

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[1] Read before the Gynecological Society of Chicago, May 19, 1893.

In looking over the general topic of the relations between the genito-urinary apparatus of women and nervous diseases, I found a field so broad that I was appalled at the prospect of any attempt to present the matter within the limits of one evening, and after considerable thought I decided to concentrate the subject by asking you to agree with me to a certain number of propositions which are practically axiomatic, and thereby fix attention, and I trust discussion, upon a major theme.

I believe that there is essential harmony among all concerned regarding the desirability of operating upon insane and nervous women for those conditions which demand operative interference, where mental and nervous disease is not in the field. Lately, however, neurological special and periodical literature and that of gynecology have been somewhat burdened with reported operations of ovarectomy or castration as a *per se* therapeutic measure in the mental and nervous diseases of women. The statement has been made, without much qualification, that there are hosts of women in hospitals for the insane who are deprived of operative treatment and are thereby consigned to the oblivion of insanity without hope of recovery. On the other hand, there are extremists who insist that gynecological interference in mental diseases is absolutely useless. I have no doubt the middle ground is the one to be here taken, as in every other situation.

What I desire to call to your attention particularly is the question of the desirability, where there are no underlying pathological changes in the organs of the pelvis clinically discoverable of the operation of removal of the tubes and ovaries as a so-called curative measure in the graver neuroses—namely, insanity, hysteria of the major type, and epilepsy. I feel that the ordinary neuroses will never call for an operation of this magnitude and severity.

In discussing this matter I wish to call to your mind a series of cases, eighteen in number, recently presented by Dr. George H. Rohé before the American Association of Obstetricians and Gynecologists, in which he removed the ovaries and tubes in insane women for conditions, some of them trifling, in others where no disorder of a pathological nature could be suspected by a previous clinical examination. These cases are selected because they conform fairly, as far as results and conditions are concerned, to many other similar operations, and particularly because they have been made the basis of subsequent reports and references in various directions. In all these cases the ovaries and tubes were removed.

The operator made an examination of thirty-five insane women and in twenty-six cases discovered what he termed disease of the ovaries and tubes. The diseases, as he has noted them in his rather incomplete report, consist for the most part of trifling conditions—at least they are trifling to my mind when compared with the magnitude of the operation, such as "enlargement," "ovarian adhesions," "tortuous tubes," "atrophic ovaries," "ovaries enlarged and cystic," and "various adhesions." I wish in this connection to call your attention to the fact that a great deal of weight is attributed to tortuosity in ovarian tubes, and, I believe, unjustly in many cases, because there is no question that many instances of tortuous and convoluted tubes are found post-mortem or in operation in which symptoms could not be attributed to them and had never appeared in the clinical history. In many lower forms of animal life and in the human embryo the oviduct is a convoluted tube. I think, therefore, that the statement that a tube is convoluted should have very little weight, and may be simply a persistent embryological condition.

The first six cases reported by Rohé he denominates melancholia. The result in these six cases was slight improvement in five and no improvement in one. I bespeak your attention rather emphatically to the conditions, aside from this operation, which may have led to the change denominated by him "slight improvement." All of these cases had existed in a state of mental disturbance for such a long period of time as would justify one in calling them cases of a chronic nature. If any one thing is agreed upon by alienists, it is the fact that after mental diseases become chronic the most important element of treatment, and the one that leads to the best results therapeutically, is a change of environment, and a mental, moral, or physical shock sometimes is capable of producing immense benefit. Therefore I undertake to say that if these patients had been subjected to the same care, solicitude, attention, change, and watchfulness, without operation, as they received under it, there might have been secured as much improvement as followed this heroic treatment.

One case of simple mania in which he found difficulty from adhesions, and in which both tubes and ovaries were removed, presented no improvement.

In four cases of puerperal mania—which is essentially a septic state and might naturally be expected to lead to conditions demanding interference of this sort—he reports two recoveries after two and six months respectively, and slight improvement in the other cases. Contrast these results with the fact that a very large proportion of cases of acute puerperal insanity get well if let alone. I think I am within the range of facts when I state that sixty per cent. of these acute cases of puerperal insanity get well in from six to nine months under' ordinary asylum care; yet, after this heroic operation, only two cases got well, and then after a period which might have marked the cases had no operation been done.

He reports a case of so-called hypochondriacal mania where both ovaries were removed with "slight improvement"; two cases of periodic insanity which presented a rhythm consentaneous with the menstrual flow, and here the removal of what he calls "cystic ovaries" produced no improvement whatever; one case of hystero-epilepsy in which the convulsive attacks usually occurred at the menstrual period, and in which he found one ovary "enlarged and cystic," and which, without other description, he reports as a recovery. In three cases of epilepsy he had two deaths, due to sepsis that was undoubtedly attributable to a pre-existent trouble in the pelvis and in no wise to the operation.

Therefore, out of sixteen cases, omitting the two cases of epilepsy with fatal issue, three cases showed no considerable improvement, there were two recoveries in puerperal insanity and one recovery in hystero-epilepsy. If we bear in mind the fact that hystero-epilepsy is sometimes cured by any form of mental treatment, by Christian science, by hypnotism, by any physical, mental, or moral influence whatever, the fact that he had a recovery after this grave operation is not worthy of much consideration. I therefore reduce the recoveries to two as a sum total, and these were in puerperal cases, which strongly tend of themselves to recovery. In two there was slight improvement, which might have been due to other causes.

His conclusions from the results obtained are, "that we should continue the record in the name of humanity, and give insane women the same chance of relief, by removal of the ovaries and tubes, that sane women enjoy." If I should draw any conclusion at all from his report, I should say it indicated the let-alone policy.

He does not refer to a form of mania closely associated with menstruation—that is, nymphomania. Certain women, especially at the menstrual epoch, are so overcome by the intensity of sexual desires and excitement that they practically lose self-control and all modesty. Here social relations enter into the argument for or against operation. In these cases the mental disturbances are often so intimately associated with the menstrual functions that if menstruation can be stopped there is some probability of this form of mental disturbance being obliterated, although the possibility of the mental storm taking some other form and drifting into a uniform type of mental disturbance is not to be forgotten.

Regarding hysteria, I have to call to your attention the fact that the medical profession has not emancipated itself from the lay idea, which originated in the medical misconception that hysteria has something to do with the uterine function. Of late years, however, we recognize hysteria in the male not infrequently. Hysterics are so susceptible to every influence, are so suggestible, that a severe operation of the sort in question, when not justified by the organic conditions in the tubes or ovaries, appears a rather large and vigorous therapeutic measure against a comparatively hopeful malady. You will find, however, throughout periodical literature many cases of brilliant results in hysteria where ovariotomy has been done, and when hysteria subsequently disappeared entirely, at least as far as the reports of the cases are concerned; but you will find many more parallel cases in which hysteria has been cured by simple measures. There are a large number of cases, many unfortunately not reported, in which hysteria has led to oophorectomy, and, so far from resulting in recovery, has been followed not only by hypochondriasis, but by confirmed melancholia and sometimes chronic mania. The fact that oophorectomy in women years before the climacteric is reached is not infrequently accompanied by mental storms, is worthy of attention.

So far as epilepsy is concerned, I have yet to find a case in which cure resulted from removal of the ovaries and tubes. The reported cases are, as a rule, mixed up with hysteria. In one case reported by Rohé, after oophorectomy the woman went right on having convulsions, yet he puts it down as showing much improvement. I think the personal equation in these reports will also always bear investigation.

I would lay it down as a rule that in the neuroses, mental or otherwise, the operation of oophorectomy with normal organs, as a therapeutic measure *per se*, should never be undertaken. This rule, like all others, has its exceptions, and in some instances it is more honored in the breach than in the observance.

A case was referred to me about ten days ago by Dr. E. W Sawyer, of this city, at the suggestion of Dr. Dudley, in which a young woman 26 years of age presented at each menstrual epoch for about two weeks the most diverse mental disturbance, sometimes in the form of depression, sometimes excitement, sometimes alternating phases of mental and moral turpitude. As a child she was peculiar; she did not associate with other girls in school; she preferred the company of married women. At the age of 15 she first menstruated, and this was marked by a cataclysm of mental storms, which recurred at each menstrual epoch from that time, and during the first year of menstrual life she never left the house, being dominated by the imperative conception that she could not go out. She was very obstinate, and at times destructive. Later on she had desires which led to promiscuous gratification, and in this way she became pregnant and had one miscarriage about five years ago. She says the feeling at times is intolerable and she cannot master it. If she resists it she becomes violent and smashes things, attacks her father or sister, and gives way to bursts of violent, obstinate anger with vulgar and profane language. She desires to be relieved, and appreciates in her better moments her unnatural instincts. If you should take this girl before any jury, even of medical men, it would be difficult to come to a conclusion which would justify them in placing her in an asylum, but clearly she needs relief. Here the nerve storm and mental lack of equilibrium is associated with menstruation; coming on six days before and reaching its acme the first day of flow, it gradually tapers off, making two weeks of alienation in all. The hope is that, should menstruation be stopped by removal of the ovaries and tubes, the intervals of health might become longer; but there is danger that the mental disturbance may merely take some other form. In this case I have recommended operation, not so much because I think it will cure the mental disturbance, but because I think it may do so, and it will certainly prevent the prospect of illegitimate and defective children.[1]

Another case was referred to me a year ago by Dr. Byford in which a woman at her second childbirth, having some slight taint of insanity, became violent. There was melancholia, heightened temperature, and at times muscular excitement, during a paroxysm of which she threw herself from an upper window. The trouble did not completely subside, and at each menstrual period since she has had disturbance or depression lasting about two weeks, followed by an interval of comparative health. Dr. Byford could find no clinical grounds for removal of the tubes and ovaries from a surgical standpoint. The operation was done, however, after other lines of treatment had failed, and the tubes were found to be cystic, but the operator did not think the condition of the ovaries as found would have justified their removal. Following the operation, at monthly intervals corresponding to menstruation, she had this same mental depression, but after the third or fourth epoch she went five weeks; and now she is in another period, during which she has gone nine weeks without mental symptoms, and her husband reports her hopeful and cheerful. Whether these intervals will grow longer I cannot say. One or two other cases of this sort might be reported, but the time since the operation is so short that I do not think they would be of any service to us in drawing generalizations.

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[1] This patient has since been operated upon by Dr. E. C. Dudley, and has passed the usual time for menstruation without any mental or sexual disturbance.

The conservative view is not altogether without support. In a paper written by Dr. Goodell, of Philadelphia, and published in the *Medical News*, December, 1889, views so parallel to those we are considering are expressed that I venture to read to you his conclusions:

"From a large experience I humbly offer to the reader the following watchwords as broad helps to diagnosis. In the first place, always bear in mind what another has pithily said, that 'woman has some organs outside of the pelvis.' Secondly, each neurotic case will usually have a tale of fret or grief, of cark and care, of wear and tear. Thirdly, scant or delayed or suppressed menstruation is far more frequently the result of nerve exhaustion than of uterine disease. Fourthly, anteflexion, *per se*, is not a pathological condition; it is so when associated with sterility or with painful menstruation, and only then does it need treatment. Fifthly, an irritable bladder is more often a nerve symptom than a uterine one. Sixthly, in a large number of cases of supposed or of actual uterine disease which display marked gastric disturbance, if the tongue be clean the essential disease will be found to be neurotic, and it must be treated so. Seventhly, almost every supposed uterine case, characterized by excess of sensibility and by scantiness of will power, is essentially a neurosis. Eighthly, in the vast majority of cases in which the woman takes to her bed and stays there indefinitely from some supposed uterine lesion, she is bedridden from her brain and not from her womb. I will go further and assert that this will be the rule even when the womb itself is displaced, or it is disordered by a disease or by a lesion that is not in itself exacting or dangerous to life. Ninthly, groin aches and sore ovaries are far more commonly symptoms of nerve exhaustion than of disease of the appendages. Finally, uterine symptoms are not always present in cases of uterine disease. Nor when present, or even urgent, do they necessarily come from uterine disease, for they may be merely nerve counterfeits of uterine disease."

Before the London Obstetrical Society, Playfair, from his enormous personal experience, concludes:

"1. The removal of the adnexa is not justifiable in cases of pure functional neurosis. 2. Even when appreciable disease of the tubes and ovaries is present, an operation should not be performed until palliative treatment has first been tried. 3. The results in hystero-epilepsy and hystero-mania are so uncertain that celiotomy is not to be advised.

"The consensus of opinion was entirely in favor of the author's conclusions, Spencer Wells being especially emphatic in his denunciation of operative interference."

With these conclusions, gentlemen, I wish most heartily to agree.

HAVE THE RED BLOOD-CORPUSCLES A NUCLEUS?

By William Moser, M.D., Assistant Pathologist to St. Catherine's Hospital, Brooklyn, N. Y.

If we define a nucleus as a "special collection of protoplasm marked off by a definite outline from the rest of the cell, and distinguished from it by resisting the action of acids or alkalies which destroy or render invisible the body of the cell, and by imbibing the stain of carmine, hæmatoxyline," etc. (Gray), we find these requirements filled in the nucleus or nuclei of the white blood-corpuscles. But since we know so little of the chemisty of the nucleus or in fact of protoplasm, I feel justified in asking the question, are these properties essential in constituting a nucleus? In determining the question as to whether or not the red blood-corpuscle has a nucleus, I used methylene blue, which we preferred to carmine, hæmatoxyline, etc., for the following reasons:

The stain (methylene blue) was given internally, according to the suggestion of my friend, Dr. J. Fuhs (physician to St. Catherine's Hospital), in one-grain doses three times a day to different patients. The blood when examined by this process is already stained by nature. In short, the patient does our laboratory work. It is obvious that this method removes many objections to artificial processes. The blood, when examined fresh in these cases, showed plainly the nucleus or nuclei of the white blood-corpuscles stained blue. The polynuclear cells (accepting Ehrlich's classification for all practical purposes) were especially well stained. The protopalsm, in contradistinction to the nuclei, remained unchanged. The blood taken from convalescents from fracture showed that the red blood-corpuscles too showed this distinction. In the center of the corpuscle was found a collection of protoplasm stained faintly but distinctly from the rest of the cell. It did not imbibe a distinctly bluish tinge in these cases, but more reddish, as is seen in the nuclei of the white blood-corpuscles when the blue is given in only half-grain doses twice daily and examined the following day. In certain conditions of anæmia (complicating tuberculosis) the blood showed the stain more pronounced. In specimens now in my possesion it is easy to demonstrate a nucleus. In a case of pernicious anæmia the stain was still more apparent—distinctly blue. Now, it is well known that in pernicious anæmia a nucleus can be demonstrated in the red blood-corpuscles in quite large numbers by artificial staining. In a case of tuberculosis now under observation the nuclei are uniformly stained.

I am inclined to believe that by this process of staining (Fuhs's method) we can distinguish a membrane. That the red blood-corpuscle has a membrane was regarded as probable by Kölliker, Richardson, and other able microscopists; but they could not demonstrate it. I am not yet ready to state positively on this point. I could also see by this method of examination (in one specimen) that the red blood-corpuscles were sending out processes in all directions, as we are all aware is so characteristic of the white blood corpuscle. I regret not to have had an opportunity of trying this method in a case of leucocythæmia. I have had an opportunity of examining quite a few specimens of leukæmic blood in Ehrlich's laboratory, and think we are justified in making a diagnosis of this condition from a given specimen according to his teaching. In pernicious anæmia, on the other hand, I am a little at variance with the teaching of Ehrlich in Germany, or Hayem and others in France. I do not believe it has much practical value. It does not give us a clew to the underlying morbid condition. I am also at variance with the teachings of Metschnikoff. While I hope enthusiasts will not use their patients as a substitute for the laboratory, I do hope to see these experiments continued, as they may yet lead to practical results.

A grain of methylene blue will do the patient no harm, even if it does color the urine. It may be of benefit in some cases. It gives us a vast field for research. I anxiously await the verdict of the critics.

I am indebted to Dr. Carroll (physician to St. Catharine's Hospital) for the clinical material which he kindly placed at my disposal.—*Record.*

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CLINICAL RECORDS.

OPERATION FOR CONTRACTURE OF THE LOWER EXTREMITY, WITH ANGULARITY.

By J. MacFadden Gaston, M.D., Professor Practice and Principles of Surgery, Southern Medical College, Atlanta; Professor Surgery Atlanta Polyclinic, etc.

A negro man, E. J., aged twenty-nine years, had suffered from scalding with steam by the explosion of a boiler nine months previously, which resulted in cicatricial contracture of the tissues of both lower extremities, so as to have fixed the legs at a right angle upon the thighs. There was much induration and thickening of the integument upon the posterior aspect of both limbs, with patches of ulceration above the popliteal region. The left arm and hand present also cicatrices ; and the left side of the head is entirely denuded of hair from the burns. The only mode in which locomotion can be effected is by placing his abdomen upward with his arms extending backward and downward, so that his hands rest upon the floor, and with his legs drawn backward his feet are placed also on the floor, thus enabling him to move on all-fours, progressing with the knees foremost. His movement compared strikingly to the backward progress of the crab, and it is remarkable with what facility he changes his position from place to place in this supine attitude. He is, however, entirely unfitted for any kind of useful employment, and is very desirous of relief by an operation. A gentlemen from Barnesville brought the patient to Atlanta, with the request that I should resort to the most feasible surgical measures for straightening his limbs. Finding that extension by traction was totally impracticable, I determined upon incision of the structures involved, with subsequent forcible extension, as there was no bony anchylosis of the knee joint.

The patient was accordingly taken to the Atlanta Polyclinic on March 1, 1893, and with the assistance of Drs. M. A. Purse, Andrew Temples, and J. McF. Gaston, Jr., the following procedure was undertaken : A hypodermic injection of morphia, gr. $\frac{1}{4}$, atropia, gr. $\frac{1}{150}$, was used as a preliminary step, with a drink of whiskey, to obviate the tendency to shock. The A. C. E. mixture was inhaled to produce complete anesthesia. The entire surface of the left lower extremity was thoroughly cleansed, as this was the limb selected for the first operation, and I proceeded to divide all the structures involved in the contracture by two free incisions, one being from the popliteal region obliquely down and the other from that region obliquely upward, thus relieving the impediment to straightening the limb. Then extension of the extremity was made by considerable pressure upon the knee, while the heel and buttock were resting upon the table, which caused a wide gaping of the wounds made by the dissection, and the small vessels which had not been ligated in the course of the incisions were now ligated, but leaving an extensive oozing from the broad exposed surface. This was controlled, to a great extent, by sponging with hot water, but compression in the application of the dressing was finally relied upon to control this oozing.

It was remarkable to what a large space the open wound extended when the traction was made upon the tissues by straightening out the limb; and fully one-third of the leg below the popliteal region and one-half of the thigh above were exposed by the opening of the incisions from stretching out of the angularity. Thus a large bare surface on the posterior aspect of the limb was left to be filled up by the granulation process subsequently.

This extensive wound was dusted over with iodoform, then covered with iodoform gauze, and outside of this was placed a thick layer of absorbent cotton. A roller bandage was applied from the foot, covering the entire dressing up to the inguinal region, and drawn tightly, so as to accomplish compression for arresting the sanguineous oozing from the large raw surface which was exposed. A splint long enough to extend from below the heel to above the ischium had been well padded and was placed behind the limb, while steady pressure was made upon the knee, thus bringing the previous angular extremity nearly to a right line. It was now enveloped in cotton batting and a broad roller was applied from the ankle up to the body, so as to maintain the limb as near straight as possible.

The condition of the patient required frequent hypodermatic injections of whiskey before the close of the operation, and these were continued at intervals of an hour afterward during the afternoon to counteract the shock which supervened. The morphia and atropia were also repeated, and eventually the patient rallied, but on the following morning there was hiccough, which continued for several days. This was finally relieved by the use of chloranodyne, which was due perhaps chiefly to the hydrocyanic acid it contains.

On the following day, March 2, it was found that there had been so much discharge of blood that it was requisite to remove all the outer dressing and place fresh cotton batting about the site of operation, but the immediate dressings next the wound were not removed for five days. When this dressing was changed on March 7, there was no longer any hemorrhage proper, but the dressings had become soaked with the serous exudation daily for nearly a week subsequently, so as to necessitate fresh application of the gauze and cotton, but without further use of iodoform, lest it might induce its special toxic effect by absorption from so large a raw surface.

The temperature did not much exceed the normal standard at any time, and from the 10th to the 15th of March it was sub-normal, with a pulse ranging from 130 to 140 per minute.

As a stimulant and corrective the following combination was used with good effect:

℞.	Carb. ammon	ʒ ii.
	Spts. turpentine	f ℥ ii.
	Camphor water	f ℥ iv.
	Muc. of acacia q. s.	f ℥ viii.

Mix and take a tablespoonful every two hours.

In the mean time abscesses appeared at the points where the needle of the syringe entered in making the injections of whiskey into the arms, indicating a septic tendency and a bad condition of the general system. As local measures, poultices of flaxseed meal were applied over the several inflamed parts, and when the pus accumulated it was discharged by an opening with the thumb lancet. With a view to an alterative and tonic effect, I resorted to this formula, which has served usually a good purpose:

℞.	Huxham's tinct.	f ℥ iv.
	Tincture nux vomica	f ʒ ii.
	Chlorate potash	℥ ii.
	Water q. s.	f ℥ viii.

Mix and give a tablespoonful every three hours.

He took milk punch liberally during this period, and had early after the operation used a combination of fluid extract of ergot, mur. tinct. of iron and tinct. nux vomica, to arrest the hemorrhagic tendency. This was evidently beneficial. He afterward used a preparation of peptonate of iron, also the manganate of iron, which aided in building up his forces.

During two months there was constant application of the long splint with firm bandaging so as to secure the limb in the straight position. After this time the roller was not applied so tight, but kept up so as to insure against any bending at the knee, preferring anchylosis with a straight limb to risking any kind of contracture in the healing process that might induce a return of angularity.

At the end of the third month there was still a large granulating surface which required frequent dressing, but as there was no longer any tendency to contraction of the healing structures it was not necessary to continue the posterior splint, and it was laid aside. He was, however, kept upon the bed for another month, so that the limb should rest upon the mattress in the straight position. The process of granulation has progressed with great regularity, filling in the deep depressions which existed above and below the articulation, so that the surface corresponds to the natural outline of the parts. My son, Dr. J. McF. Gaston, Jr., has taken charge of the dressings, and informs me that the suppuration was very great during the latter part of the first month, but after a month it gradually diminished, so that it was not requisite to change the iodoform gauze and cotton oftener than twice a week, while during the last two months the dressings have remained for an entire week. He also observed that the skin gradually encroached upon the granulating surface, covering in all the tissues below the knee, including the popliteal region and extending above the condyles of the thigh, leaving now only one oblong area of the size of the palm of a hand exposed on the posterior aspect of the biceps. This new skin has the normal pigment, and is not thickened and indurated, but pliant and elastic in its structure.

About July 1, four months after the operation, the patient was allowed to get out of bed and sit upon a chair, still keeping the limb extended. Before the end of July he began to use crutches, and has since been walking about the house with their assistance, but not attempting to bend the limb at the knee, though there is some mobility of the joint, which favors the expectation of ultimate restoration of its normal movements.

It has not been thought prudent to operate upon the other limb until his general health shall be entirely restored by exercise in the open air upon his crutches.—*International Journal of Surgery.*

DYSMENORRHŒA ; ITS VARIETIES AND TREATMENT.

By H. Marion Sims, M.D., Professor of Gynecology at the New York Polyclinic ; Visiting Gynecologist to St. Elizabeth's Hospital, etc.

Gentlemen : The patient I present to you to-day furnishes us an example of the relief that can be afforded by treatment to one of the most distressing forms of dysmenorrhœa to which woman is subject. Dysmenorrhœa, as you know, appears in three varieties. It may be due to a malposition of the uterus, to mechanical obstruction, or to some ovarian or fallopian trouble ; viz., some cause outside the uterus itself.

In noting the symptoms that accompany dysmenorrhœa, it is a very important thing to first of all ascertain the exact nature of the pain the patient is suffering from, whether it began with the flow, or a little time after, or preceding it, as is very frequently the case with a large number of patients who quite commonly suffer from pain a week before the establishment of the catamenia. If the patient complains of pain a week or so before the flow has made its appearance, we may generally take it for granted that the source of the trouble lies outside the uterus itself. If, on the other hand, the patient complains of pain coming on at the time of the flow and then gradually diminishing in intensity, we may state with positiveness that there is some mechanical obstruction to the free escape of blood from the cavity of the uterus.

In the case of the patient before us the pain began one week before the establishment of the menses. It persisted all through the flow and did not entirely disappear until a week after the subsidence of the menses. This patient was consequently three whole weeks in actual pain—a most distressing condition.

I made a physical examination of this woman so as to enable me to determine her condition, and on bimanual palpation I found that she had a retroverted uterus which had become firmly bound down by adhesions, and that the ovaries had undergone cystic degeneration. Under such circumstances it would be utterly useless to try and remove this woman's troubles by anything less than a resort to a laparotomy, and this was accordingly performed. As a result of this measure she now feels a great deal relieved of her symptoms. She has no pain, she menstruates regularly, and the uterus is in its normal position in the pelvic cavity.

I wish in this connection to state that I do not deem it necessary to perform a laparotomy in all cases of this kind. If the trouble here had been due to posterior adhesions of the uterus alone, without cystic degeneration of the ovaries, or without the adhesion of both ovaries, the adhesions might have been broken up by bimanual palpation and the uterus restored to its normal position. This method I have often had recourse to very successfully under anæthesia, and would recommend it in every instance before doing a laparotomy. I pass a Sims' elevator into the retroverted uterus, and by using this as a lever I raise the uterus up as far as the adhesions will permit. In resorting to this maneuver be careful not to touch the fundus of the uterus with the instrument, for you are very apt to do harm. When you have introduced it say to the depth of about two inches, then pass your index finger into the rectum and you will feel a firm band of adhesions, rendering it impossible to raise the uterus any further. The whole plan of treatment consists in breaking up these adhesions by bimanual manipulation.

The next variety of dysmenorrhœa, and one of very great frequency in practice, is that known as the obstructive or uterine dysmenorrhœa, and whether this be due to a narrowing of the cervix or flexion of the uterus, physical examination alone will reveal. If due to narrowing of the canal, the cervix will be found perfectly straight, the canal straight, but the os will be small and narrow.

In the treatment of this form I do not rely wholly on the use of dilators to widen the canal, but combine division of the cervix with dilatation. This is the quickest and, at the same time, the most humane procedure from the patient's standpoint, inasmuch as she is under the influence of an anæsthetic and feels no pain. I then introduce a rubber stem pessary to keep the canal open, and leave it in situ for six or seven days. The operation is not a bloody one and is absolutely free from all danger.

In the case of anteflexion with the cervix elongated and the os in the direct axis of the vagina, I make an antero-posterior incision. I then introduce the ureterotome into the os internum and divide the firm bands of tissue that exist at that point. After these have been divided and the sound passes in freely, I then introduce the dilators. A rubber stem is next inserted in position to keep the canal patulous, and in five or six days there is formed a cervix with a straight canal. When this is brought about I introduce a self-retaining rubber stem which is kept in place for from three to four months according to circumstances. The patient will have absolute freedom from pain during menstruation, and in addition be relieved from the reflex nervous troubles that accompany this affection.—*International Journal of Surgery.*

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CLINICAL LECTURES.

THE SO-CALLED CONSERVATIVE OPERATIONS UPON THE OVARIES, TUBES, AND UTERUS.

By Prof. A. Martin, Berlin.

The author emphasizes the points that removal of both adnexa is a procedure frequently of questionable utility, that most of the doubts expressed with reference to the conservative method are unwarranted, and that the results of the operation in a large majority of cases are exceptionably favorable.

1. Resection of the Ovary.—It is a well known fact that while both ovaries are usually found simultaneously affected, the disease in both is not always due to the same cause; the one ovary may be in a condition of destruction from a new growth, while the other may be the seat of cystic degeneration; in the one there may be suppurating follicles and abscesses and in others circumscribed cysts. Dropsy of the follicles was cured long ago by Spencer Wells by simple puncture, and excision of a degenerated segment of ovary was first performed in

a systematic manner by Schroeder. Notwithstanding these favorable results, the majority of gynecologists are in favor of complete removal of partially diseased ovaries. Dr. Martin thinks this necessary in cases where the portion of ovary unaffected by the disease is incapable of function and where a suppurative process exists, no matter what be the cause of the pus formation. In the minority of cases, however, where there is present chronic oophoritis or circumscribed neoplasms, he regards this as unnecessary. Among 27 cases in which he has operated by conservative methods, one died of the infection from the suppurating tumor on the other side. Of the remaining 26 cases recent reports are at hand from 24, and only two of these have suffered recurrences. The fear that the remaining portion of the ovary will again become diseased is therefore unfounded. But even if a greater percentage than 2 out of 24 cases had become recurrent, this would be of little significance in view of the fact that eight of the patients subsequently gave birth to children. In five of these eight cases resection was performed for chronic oophoritis and in three for small cystic growths. Five of the patients became pregnant for the first time, after the operation. Muller advocates ignipuncture for the destruction of small cysts as a substitute for resection, and Pozzi also expresses himself very favorably regarding ignipuncture. His results in six cases of resection and six of ignipuncture were excellent, but they are of too recent date to warrant conclusions with reference to recurrences and pregnancy. Martin has been so successful with puncture, or excision and suture, that he considers ignipuncture an unnecessary complication.

2. Resection of Occluded Tubes.—It is much more difficult in the case of diseased tubes to determine the character of the disease. Great caution must be exercised, and in many cases where the contents of the obstructed tube seemed somewhat suspicious, Martin has resorted, in place of the anticipated resection, to complete removal of the tube and of the frequently healthy ovary. If the contents are turbid or purulent, if the mucous membrane is ulcerated, he abstains from resection. If, however, the mucous membrane is smooth—a condition frequently not determined until after washing away the adherent secretions—and if fluid contents are not found, then resection is justifiable. Among 40 cases treated by the author, 38 were cured by resection. As these cases presented severe complications, a mortality of 5 per cent. cannot be considered unfavorable. The objections urged against the opening of occluded tubes and the establishment of a new infundibulum have not been realized by Martin's experience, at least those according to which this operation favors a fresh infection or de-

velopment of an extra-uterine pregnancy. Of the 38 patients who recovered, only four were not permanently cured or improved, and in view of the fact that all the cases were complicated by peritonitis, this percentage of cures is comparatively high. Only one of the patients became pregnant, but twelve were unmarried, and among the married ones nearly one-half of the husbands were neurasthenic or suffered from chronic gonorrhœa. Martin thinks that even if in his cases of tubal resection pregnancy should not occur, the removal of the disturbances and the improvement of the general health in the majority of patients must be regarded as a decided success.

3. Enucleation of Myomata of the Corpus Uteri.—The enucleation of intra-parietal myomata of the body of the uterus is not favorably looked upon by gynecologists. According to the author's experience in 141 of these operations, enucleation should be considered seriously in the case of young persons up to the age of thirty-five years, and, if only one tumor exists which does not exceed in size an ostrich's egg. Under these circumstances the prognosis is favorable both as regards the operation and the subsequent condition. Among 21 youthful patients, 2 died, while the remainder regained normal menstruation. The author's statistics of enucleation give a mortality 18.5 per cent., but it must be remembered that many of the cases date from a time when the technique of laparotomy had not been perfected. Among the last 20 cases only one death occurred. Recurrences took place in only 4 of the 115 cases of recovery, while, in 2, pregnancy occurred. Too much weight should not be attached to the fact that recurrences may develop after enucleation, especially when it is considered that this procedure preserves the female functions. The menopause induced by the radical operation is frequently very troublesome in the case of older women, while in younger persons it is sometimes attended with grave dangers. The ability to bear children after the conservative method is also in its favor, and Martin's views differ in this respect from those of Hofmeier and Hegar.

As regards the technique of enucleation, it has been stated by Fritsch that suture of the cavity left after removal of the fibroma is frequently very difficult, and that after release of the constriction hemorrhage may occur, but these conditions have never been encountered by the author. He has given up constriction for a long time. The assistant presses the uterine neck against the symphysis, and attention is seldom paid to the few spurting vessels, since rapid suturing prevents considerable loss of blood. The sutures consisting of catgut are applied in closely adjacent, superimposed layers, and finally strengthened by four or five silk sutures which are passed deeply into the substance of the corpus, holding it firmly compressed, and are tied externally on the peritoneal surface.—*Deutsche Medicinishe Wochenschrift*, July 27, 1893.

BACTERIOLOGY.

THE STERILIZATION OF THE URETHRAL CANAL.

By James Porter Fiske, M.D., New York.

From a theoretical point of view, when a substance or surface is made sterile it is perfectly free from micro-organisms or their spores. To test a given object, to ascertain its condition, whether it be free or not from bacteria, we make cultures. If we attempt to render the urethral canal sterile, and then take a urethral sound (sterilized), introduce it into the urethral canal, withdraw, and quickly apply it to a gelatine plate, we can very soon tell whether our efforts have been successful or not. If in the tracks of the sound over the culture plate colonies of bacteria proliferate, then the urethral canal has not been rendered sterile.

Practically, we cannot readily render the urethral canal absolutely sterile, because we cannot safely use the stronger antiseptic solutions; but we can put it in such a condition that any surgical procedure may be undertaken with impunity, as regards infection from the mucous membrane itself.

The passage of the urethral sound is a procedure which I would not undertake without first attempting to sterilize the canal and tissues surrounding the meatus. I see no reason for rendering our instruments aseptic, if we do not make the field of operation also aseptic. That the meatus and surrounding surface of the glans penis is usually surgically unclean, no one will dispute, yet the sound in its passage must come in contact with these parts and carry infection down. It would be interesting to know how many cases of urethral fever can be accounted for by the passage of clean instruments over parts and through a canal not rendered aseptic. That we may have a condition of profound shock follow the passage of the urethral sound is well known, but that a form of urethral fever not due to sepsis may follow the passage of instruments, I do not believe. That infection may follow dirty instruments, an unclean canal, or the flowing of urine over an abrasion produced by the sound or otherwise; but infection always precedes true urethral fever.

The passage of instruments, particularly dilators (sounds), divulsors, etc., almost invariably produces fissures or excoriations of the delicate lining membrane of the urethra, and any foci of infection existing within the canal, or any particle of sepsis carried down the urethra, are favorably placed for absorbtion, and each may become the starting point of urethral ulcer, lymphangitis, acute urethritis, or urethral fever. The body as a whole, and various localities in particular, have been shown to have the power of successfully resisting bacteria in certain numbers and of varying degrees of virulence. And as we reduce the number of bacteria in a given region, so we decrease the chance of germ infection, and in a region where there exists a "locus minoris resistentiæ" this is of vital importance.

To one accustomed to aseptic methods, the precautions necessary to be taken to render the passage of instruments in and through the urethra safe, are simple. A pus basin, a blunt nozzled syringe holding about one ounce, some pledgets of absorbent cotton, a warm solution of ac. boraci., four per cent., and solution of bichloride (1 to 2,000), are all that are necessary. A sterilized towel, or one soaked in the solution $Hg\ Cl_2$ (1 to 2,000), should be so arranged that the penis lays on it, and the surrounding parts are covered. The entire penis, foreskin and glans, are to be thoroughly soaked with the bichloride solution. Then take the blunt-nozzled syringe and inject the solution ac. boraci. into the urethra, repeating once. After the above procedure we can safely pass sterilized instruments in and through the urethral canal. After the passage of any instruments, especially if I suspect that any abrasions have been made, I flush out the urethral canal once more with the solution a.c. boraci, and allow the patient to depart. This simple procedure is to be carried out previous to the passage of any instruments, either exploratory or for treatment, as the use of the sound in stricture, Thompson's searcher for stone, etc., and is not to be confounded with the more extensive antiseptic precautions which must precede every *bona fide* operation in this region. Instead of the saturated solution of boracic acid, we may, with perfect safety and success, use a solution of peroxide of hydrogen (1 to 4), or a watery solution of Listerine in the same strength. A solution of idoform in olive oil has been largely used, and in a measure fills the bill, both as a lubricant and antiseptic.

Many operators, immediately before any instrumental procedure, inject the canal with a solution of cocaine, and then proceed in their work, using clean instruments in many cases, it is true, but often making no attempt to render the site of the operation aseptic. If the patient understood the principles of aseptic surgery, he would exclaim, "I will stand the pain, but will not tolerate the use of septic instruments or septic methods." There is no objection to the use of cocaine, but its use must be preceded by all antiseptic precautions being taken, and if the busy practitioner is pressed for time he had better discard the injections and applications of cocaine, and stick to aseptic surgery. The time and efforts expended for the prevention of pain should be applied to a better cause, the prevention of septic infection.

Some physicians will perhaps think it unnecessary to flush the canal. If the urethral canal is absolutely normal, it is, but in any case where there is a pathological condition of the urethra we ought to irrigate. If the urethral mucous membrane is secreting abnormally, if we know or suspect the presence of granular patches, if there is an existing stricture, preventing as it does the free exit of discharges, irrigate by all means, and irrigate thoroughly, before the passage of any instrument. The surgeon who neglects to take this precaution in any of the above conditions, imperils the deep urethra and neck of the bladder.

If we except the catheter, it is a pretty safe rule to follow, that where there is cause to pass instruments into the urethra, there is also good reason to first flush the urethral canal. To them ethodical surgeon who believes in and practises asepticism in this region, it is only a question of putting one's self to a little trouble and the expense of a little time, say seven to ten minutes, both of which he gladly bestows on his patient, realizing as he does the result of septic infection.

PHARMACY AND THERAPEUTICS.

NEURALGIA.—Neuralgia, or neural hyperaesthesia, is the generaic name for a number of diseases of which the chief symptom is pain following the course of a nerve or group of nerves and generally fixing itself where the nerve emerges from a foramen or at a superficial point just before it dips into a fascia. This designation is indefinite and leaves room for many central lesions to be classed as neuralgia which have an entirely different pathology, and consequently require different treatment. No pain that is due to a disease of the brain or spinal cord should be called neuralgia, but that alone which is limited to a nerve in some part of its course. It is most commonly located in one of the branches of the fifth pair, oftener in the opthalmic division, when we have that condition generally known as hemicrania. This form is usually intermittent or periodic, coming on in the morning and subsiding at nightfall. The stomach is often nauseated and this reflex manifestation, especially in females, gives it the name of "sick-headache," which is one of the most troublesome affections the physician has to encounter. When that part of the face from the lower eyelid to the mouth, including the side of the nose, cheek and upper jaw is involved, we have the lesion stated in the superior maxillary division. When the lower jaw is involved, the disease is in the inferior maxillary division. When the neck and back part of head are the seat of pain, the first four cervical nerves are involved. This form is not so acute or painful as that of the fifth pair.

When the neck and shoulder are the pathological points, the disease is seated in the brachial plexus of the lower five cervical and first dorsal nerves. This variety generally follows exposure to cold, traumatism or a rheumatic diathesis. The intercostal nerves may also be affected, when we have intercostal neuralgia or pleurodynia. If the pain is in the back, we have involvement of the dorsal nerves; this is sometimes thought to be muscular rheumatism. If we have the lumbar plexus as the seat of pain, what is termed "lumbago" is the result. The sciatic nerve may be affected, when we have either a neuritis or a functional neurosis. It is called "sciatica" and generally is accompanied by a history of rheumatism or gout, and is often a very stubborn disease. Coccydynia or neuralgia of the coccyx and pododynia neuralgia of the heel, are also varieties of this disease that often occasion the physician endless trouble. Before we undertake the treatment of this disease, it is vitally important to know as much as we can of its etiology and complications. The success of our treatment depends largely upon our knowledge of the morbid processes in operation and neuro-pathological conditions transmitted by the parent to the offspring, as well as the quality of the blood and nutrition of the body. With an inherited tendency to neuralgia, followed by anemia, depressed vitality of the system, and exposure especially to malarial influences, it is very easy to establish the disease on an enduring basis, but by removing or counteracting these factors, followed by proper medical treatment the patient may, generally, be restored to health. If the cause is malarial or syphilitic and the disease is of an intermittent type, it yields more readily to treatment, but when these causes do not operate and the patient is advanced in years, the prognosis is not so favorable. Often in neuro-pathic families, when there is an enfeebled nervous system, the least exciting cause will develop neuralgia and to prevent such results, the nutritive processes must be supported until the nerves, blood and every organ are restored to the healthiest, normal condition, very often when this is done, specific treatment is not necessary, as the pain vanishes as suddenly as it appeared.

We have found, in the majority of simple cases of neuralgia, large doses of subcarbonate of iron, 30 to 40 grains, three times a day, continued for a considerable time, will do more than any other single remedy toward the conquering of this stubborn malady. If there is a malarial cachexia, this preparation of iron added to quinine and one of the coal tar derivatives, for example, Antipuralgos, chemical compound of uniform and safe action, prepared under a published formula—in our hands has been followed by the most satisfactory results, the indications fulfilled by this combination are improvement of the blood by the iron, the tonic and antiperiodic action of the quinine and the analgesic ieffect of the "antpuralgos" allaying the excessive hyperæsthesia of the nerve, and besides, we have the antiseptic and germicidal properties of the tar derivative, which latter are valuable in the treatment of all diseases that either originate in germs, or are influenced by them. There are other preparations of coal tar derivatives, which we have tried and found good and have also recommended, but some of them are dangerous from want of uniform action and should therefore not be used except under the eye of the physician. Our experience of antipuralgos can be better presented to our readers by a report of its effects recently in two cases, 1st, that of an elderly lady, 2d, that of a middle aged man.

Mrs. W., age 50 years, called at our office, March 15, complaining of excruciating pain in half of the head, with malarial accompaniments. We prescribed quinine ʒ ss.; ferri subcrab ʒ i; morphine sulph grs. ii, to be made into 12 capsules, and one capsule to be taken every two hours till relieved. March 18, she called again; was not suffering from pain, but in an unfavorable state, nervous and feeble. We prescribed the same as before with the exception of the morphine, substituting "antipuralgos" in 5 gr. doses. March 21 called again, was free from pain and otherwise remarkably improved. We advised the same medicine to be continued three times a day for another week. She shortly afterward went south, and the other day we received a letter from her requesting us to send her the prescription for the last medicine, as she wished to have a supply in case of a return of the trouble, saying it acted more satisfactorily than any medicine she had ever taken for her neuralgia, but warning us not by mistake to send her the prescription for the first medicine, as that had nearly driven her crazy.

2d Case.—Mr. C. called at office, April 10, complaining of severe pain in upper teeth, jaw and malar bone. History pointed to malarial cause. We prescribed quinine ʒ i. Ferri subcarb ʒ i, antipyrine ʒ i, to be made into 20 capsules, of which one was to be taken every two hours till relieved. April 14, patient called again, somewhat relieved, but weak and nervous. We substituted "antipuralgos" in place of antipyrine in 5 gr. doses, and advised an interval of three hours between doses. He called April 20, and said he merely called to request us not to forget to give him the same prescription as the *last* in case of a return of the trouble. We have found in some cases "antipuralgos" uncombined with other remedies, answers the purpose well, and sometimes we have used it in connection with strychniæ phosphorus and iron, or other agents indicated at the time. Any line of treatment adopted must be pursued until there is no longer a symptom of the disease or even a trace of the neuralgic habit left.

A VERY EXHAUSTIVE REPORT on the value of diabetin was incorporated in a paper on diabetes melitus, read by privy councillor Professor Dr. Leyden of Berlin University at the XV. Congress of the Berlin Balneological Society, held March 10, 1893. The paper is published in full in the "Deutsche Medizinal Zeitung," June 5 and 8, 1893, Nos. 45 and 46, and we give its salient points below. Prof. Leyden referred to the various experiments which had been made twenty years ago at his clinic (then in Strassburg) with inulin and levulose by one of his students, Dr. Komanos. It was shown at that time that the excretion of sugar was diminished when diabetic patients were given these particular forms of sugar. At that time levulose was very high priced. Since then the price has been considerably reduced by the Schering process, and therefore Prof. Leyden in 1891 and 1892. again took up these experiments. Dr. G. Klemperer, his assistant, was able to prove, in the case of two diabetic patients, that the exhibition of from 25.0 to 60.0 gms. (1 to 2 oz.) of levulose daily for a short period of time, does not increase the sugar of patients, suffering from the grave form of diabetes. The next experiments were made at the female division of the clinic by Dr. Heyse, staff-surgeon to the German army. The daily amount of carbohydrates partaken by the first patient was 170.0–180.0 gms. (about 6 oz.) during some periods 50.0 gms. ($1\frac{2}{3}$ oz.) of levulose was substituted for the same quantity of cane sugar. The proportion of sugar in the urine to the quantity of carbohydrates taken was found to be for levulose (average of 24 experimental days) = 3.9 : 100; or cane-sugar (average of 14 experimental days) = 6.6 : 100. The difference in favor of levulose, therefore, amounted to 2.7 per cent. For the second patient the same relation was found to be: for levulose (average of 11 experimental days) : 27.5 : 100; for cane-sugar, (average of 12 experimental days) = 31.9 : 100. The difference in favor of levulose amounted to 4.4 per cent. The sugar was estimated in the urine by polarisation, titration with Fehling's solution and with Einhorn's fermentation tube, all the methods giving corresponding results.

A most remarkable fact, observed in connection with this case, is the following: During the exhibition of levulose, the amount of sugar in the urine decreased from day to day during the experimental period, so that the oxidation of the carbohydrates increased constantly, showing an adaptation of the system, while just the reverse was true for cane-sugar, the daily amount of sugar in the urine increased during that experimental period. The result of these therapeutical trials (which are illustrated by diagrammatic curves) is a very valuable one. It is shown thereby that levulose is put to much better use by diabetic patients and less of it is excreted by the urine than of cane sugar, which also includes the sugar formed in the system from the carbohydrates of the food. Although none of the above cases were of a very grave character, two at least must be considered as quite serious ones. A portion of the levulose was excreted as dextrose without having been put to any use, but this was much less than with ordinary sugar. An amount, more or less considerable, was certainly consumed and put to use in the organism. These results certainly should encourage us to make use of levulose in the treatment of diabetic patients, for the reason that, if a moderate amount of this form of sugar is partaken of, say 50.0 gms. or a little more (nearly 2 oz.) per day, a much larger portion of it is consumed by the system, while only an inconsiderable portion is again excreted with the urine. Prof. Leyden, in continuing, dwells upon the fact that the so-called symptomatic treatment of diabetes is deceptive, in so far as the intention of the physician is only directed towards diminishing or abolishing the excretion of sugar in the urine, by totally withholding sugar and sugar-forming food from the patient. While it cannot be denied that the unconsumed sugar, circulating in the blood, has a pernicious influence on all the various tissues of the body, we must take in consideration the fact that in withholding all the food mentioned we actually starve our patient.

Sugar and sugar-forming food constitutes more than half of the nourishment a healthy person needs. When we feed diabetic patients on fat and albuminoid food only, we therefore force him to live on his own bone and flesh, from which the system is forced to draw for its needed supply of carbohydrates. It is well known that pure meat-diet carries with it the great danger of inducing diabetic coma and it is therefore the imperative duty of the physician to furnish his patient with a moderate amount of sugar and sugar-forming food. At the same time, in order to provide for an ample excretion of the circulating sugar, Professor Leyden suggests to encourage the patient to imbibe a sufficient quantity of liquids. Such therapeutic measures also tend to avert another fatal danger, viz., death from sheer inanition. It is evident that a diabetic who cannot supply to his system the substances necessary to maintain his strength and to keep the tissues from wasting away, must eventually go on to complete dissolution. Therefore, Professor Leyden maintains, the prime indication is to feed diabetic patients well, in order to prevent progressive emaciation. The excellent advice which he gives in this respect, as the quantity and quality of the food to be prescribed it would lead too far to detail here. But in the light of the fundamental principle, thus laid down by this great clinician, it is evident of what great value levulose (diabetin) must be in diabetes, since sugar and sugar-forming food must be partaken of to a certain extent by these patients.

The name of diabetin to this levulose was given by Schering because its main therapeutic use is that of a substitute for cane sugar in the regimen of patients suffering from diabetes.

SULPHONAL AND TRIONAL AS HYPNOTICS.—In a paper read before the New York Neurological Society, Dr. William D. Granger stated that Sulphonal, Tetronal and Trional were so closely related that they might be considered together. Almost every one had a place for the first. It had marked hypnotic power. In ordinary doses it seemed to be safe. Its long-continued use was to be avoided, not so much that it quickly lost its power, for it did not, but that it was dangerous to health. Its action was often slow, for, even if taken in the hottest water, it sometimes seemed to be precipitated in the stomach, unless quickly absorbed. Its effects were frequently long-continued, and the second dose often acted better than the first. It was pure hypnotic, but it was less powerful than chloral. It was of little value where sleeplessness was associated with pain. Trional and tetronal were akin in many respects to sulphonal. They were all true hypnotics and are at present attracting some attention.

In the discussion which followed, Dr. Stieglitz stated that he had employed trional in about thirty cases in dispensary with very good success. The usual dose was fifteen grains. He considered it more reliable than sulphonal. Dr. M. Allen Starr said he was in the habit of ordering Sulphonal to be taken an hour before bed-time, and always in connection with some article of food. When it was given on an empty stomach its effects were much delayed.—*N. Y. Medical Journal.*

Pilocarpin in Hiccough.—Dr. Stiller, in *Centralbl. f. Klin. Med.* recommends pilocarpin for hiccough of nervous origin, administered in ten drop doses of a one per cent. solution, three or four times a day

Salve for Rheumatic Pains.—*L'Union Médicale* gives the following:

℞ White wax	5 grammes
Adeps	15 grammes
Add to this, when sufficiently cool,	
Chloroform	3 grammes

A layer of this preparation is to be spread upon a compress held in place by a bandage. Wax is added to the ordinary base to retain the chloroform longer and thus obtain a greater analgesic effect.

In the *Medical Record* of July 29, 1893, Dr. D. B. Hardenbergh, of the N. Y. Post Graduate Medical School, reports a series of cases of acute rheumatism treated in the wards of Drs. Dana and Brannan, in Bellevue Hospital, by means of salophen. Case 1, laborer, æt. 46; mild attack; salophen, gr. xv. t. i. d.; cured in 12 days. Case 2, man, colored, æt. 35, temperature 102.2°; local symptoms well marked; salophen, six doses of xv. grs. in 24 hours; temperature went to 105° on same night; then to normal, where it remained. Case 3, laborer, æt. 30; pain very pronounced; temperature 103.4°; salophen, seven doses of xv. grs. in 24 hours; menthol locally; temperature went to normal on third day. Case 4, laborer, æt. 34 (the treatment was not completed on account of a transfer). Case 5, laborer, æt. 22; temperature 102.6°; two doses of 15 grs. salophen in 24 hours; complete convalescence in 7 days. Case 6, laborer, æt. 16; temperature 103.°; salophen, gr. xv., every two hours for 36 hours; then every four hours; menthol, 5 per cent., locally; discharged cured in 5 days. Case 7, longshoreman, æt. 55; temperature 101.4°; salophen, seven doses of 15 grs. in 24 hours; discharged cured in ten days. Case 8, longshoreman, temperature 103.2°; salophen, six doses of 15 grs. in the 24 hours; temperature normal on third day; discharged in 8 days. Case 10, driver, æt. 31; temperature not high; pain intense; salophen, gr. xv., nine doses in 24 hours; temperature normal on third day; discharged on fifth day.

Conclusions: Dosage, gr. xv., six to eight times in 24 hours may be considered adequate. Tolerance: There was no gastric, aural or other irritant or toxic property manifested. Even when elevated doses were given (as in case 6, for example, 270 grs. in 36 hours) no ill effects were observed. Therapeutic effect: The average febrile period being $6\frac{1}{9}$ days and period of cure less than 10 days, attest great curative value. Abatement of other symptoms equally rapid; no cardiac complications; a 5 per cent. solution of menthol in gauze, covered with oiled silk, is a valuable adjuvant.

TINCTURE FOR DYSENTERY AND DIARRHŒA. DR. GELPKE.—

℞	Bark of pomegranate root	ââ ʒ iiss.
	Bark of simaruba root	

Mix.

Macerate for twenty hours in white brandy. ℥ xxx.

Six to eight tablespoonfuls (tea or dessertspoonfuls for children according to age) in the twenty-four hours.

Dr. Gelpke (Java) asserts that this preparation is a certain remedy for dysentery, curing it in from four to eight days, however severe the case. It acts far more rapidly than other remedies in simple diarrhœa, especially in the summer and infantile forms.—*Medical Week.*

A PLEASANT PURGATIVE FOR CHILDREN.—Every physician has felt the want of a pleasant purgative for children. Dr. C. H. Smith writes to the *Columbus Medical Journal* that the following formula has been used by him for years:

℞	Glycerini	ʒ i.
	Ol. cinnamoni	gtt. vi.
	Trit. bene et adde.	
	Ol. ricini	℥ i.

M. S. ʒ i. at a dose p.r. n.

ABSOLUTE ALCOHOL.—Dr. E. R. Squibb, notwithstanding most careful trials, long continued, has failed to obtain a strictly anhydrous absolute alcohol, and he concludes that such an article has not yet been prepared. In his experiments he found that about .04 per cent. of water was left in the alcohol. The process giving the most satisfactory results was that of repeated percolation through lime, metallic sodium not effecting as high a degree of dehydration.—*Pharmaceutical Era.*

STRYCHNINE A COMBINATION OF TWO ALKALOIDS.—Late observations concerning strychnine are to the effect that commercial strychnine as found in the market contains at least two alkaloids, one of which it has been proposed to call strychnine and the other homo-strychnine.—*American Therapist.*

FOR FEVER BLISTERS.—

Camphor	5 grs.
Powdered arrowroot	½ dr.
Subnitrate of bismuth	½ dr.
Ointment of rose water	½ oz.

Apply frequently to the lips.—*Pharmaceutical Era.*

NITRO-GLYCERINE IN EPILEPTIC PAROXYSMS.—The use of nitro-glycerine and nitrate of amyl in warding off an epileptic seizure when the first symptoms of the aura are recognized, has long been known, but Bates (*New York Med. Journ.*, July 29th), advocates the use of nitro-glycerine by hypodermic injection during the convulsion. In his first case the patient had had attacks for four years; he had fallen in an attack, was rigid, totally unconscious, with violent muscular convulsions, foam about the mouth, and all the symptoms of an epileptic seizure. A hypodermic injection of $\frac{1}{100}$ grain of nitro-glycerine was given, and, before the needle could be withdrawn, total relaxation took place, consciousness returned, and the patient asked for a glass of water. Bates had tried the plan in twelve cases without a failure; only once a second injection was necessary. The method shortens the attack, saves fatigue, lessens the after effects, and, the author thinks, has some influence on the frequency of the attacks. The after treatment consists in the administration of bromides in a bitter infusion, hops being preferred, and the use of minute doses of nitro-glycerine.—*British Med. Journal.*

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ABSTRACTS.

THE ROLE OF THE POSTERIOR URETHRA IN CHRONIC URETHRITIS.

In a paper read by Dr. Bransford Lewis, of St. Louis, before the June meeting of the American Association of Genito-Urinary Surgeons (*MedicalRecord*, June 29, 1893), the author presents some very radical and unorthodox views on the frequency of posterior urethritis and its influence in the production of chronic gonorrhœas.

The various causes commonly accepted as sufficing to explain persistence in gonorrhœa, were reviewed and their potency as such was denied, seriatim. Two cases were reported, showing that the presence or absence of the gonococcus alone, could not form a reliable criterion as to prognosis: Case I. (primary) with abundant gonococci--containing discharge lasted six weeks; while Case II. (secondary), also giving abundant gonococci--containing discharge, lasted only one week. The influence of anatomical abnormalities was restricted to only a small minority of the exceedingly numerous cases of chronic gonorrhœa, and did not explain the great number that occurred. The several varieties of urethritis, such as "granular urethritis," "catarrhal urethritis," "hypertrophic urethritis," etc., were only pathological incidents, not causes, of chronic gonorrhœa; and even on discriminating between these several varieties, the question still obtruded itself: What was it that had produced that particular variety?

Again, urethral therapists, with ardently-advocated new remedies, supposedly specifics, had all in turn failed in their endeavors to abolish prolonged claps. For this reason, it must be acknowledged that the various factors to which chronic urethritis was usually attributed, while relatively important in a contributory way, did not cover the ground in actual clinical experience, and something else must be found to bear the onus of being a prolific source of chronic gonorrhœa.

While aware that infection of the posterior urethra was almost universally recognized by advanced practitioners of the present day, as a complication of gonorrhœa that was difficult to cure when it did occur; that interfered with the usual course of treatment employed, and required special measures for its relief, etc., he did not believe that the full importance of posterior inflammation was generally conceived; that its frequency was even approximately estimated in general, or that its bearing on almost every case of gonorrhœa was understood, recognized or acknowledged.

In Dr. Lewis' opinion, the posterior infection should not be looked upon as a complication, but as a natural feature, occurring with such unfailing regularity that an observer, watching carefully and critically gonorrhœal cases, must see a great many of them before he would meet with a single one that remained free from the so-called complication throughout the disease. This conclusion, to which clinical investigation had led him, was supported, in recent writings, by the following statistics of authors who had been pursuing a similar study of late years: Lesser asserted that of fifty-three cases of primary gonorrhœa under his care, the posterior urethra escaped infection in only four cases, making the frequency of posterior urethritis 93.5 per cent. Jadassohn found posterior urethritis in 143 of 163 cases, making 87.7 per cent; Rona found it in 79 7 per cent of his cases; and Eraud found it in 80 per cent of all his cases.

In endeavoring to harmonize this undoubted fact of frequency of posterior urethritis with the reason for its frequency, the author disregarded, as inapplicable, explanations usually given. Sexual intercourse, the "forced" injection, the passage of instruments, etc., during an active gonorrhœa, were chiefly complained of by writers on the subject—extremely seldom by the patients themselves. Bearing on this point, the time and mode of onset of the posterior inflammation was of importance. Instead of the inflammation progressing slowly and gradually backward over the urethral mucous membrane and reaching the posterior urethra in the second or third week, as was commonly taught, it reached the posterior urethra, in most cases, in the first (active) week of the disease. This rather favored the supposition of Horteloup that the mode of infection was through the lymphatics, rather than by continuity over the mucous surface.

The author, therefore, felt justified in submitting the following conclusions:

1. The causes usually given for the prolongation of cases of clap (presence or absence of gonococci stricture of large calibre, the use of particular drugs in treatment, etc.) do not satisfactorily explain them, nor do they furnish reliable means for prognosticating the outcome of a case.

2. A single widely prevalent cause for such prolongation of gonorrhœa has, as yet, not proved its right to recognition as such.

3. Posterior urethritis, by reason of its anatomical seclusion and inaccessibility to ordinarily prescribed treatment, if frequent, offers the best explanation for such prolongation or repeated recurrence.

4. Scrutinizing clinical investigation shows posterior urethritis to be present in the great majority of cases of prolonged or severe gonorrhœa.

5. Direct, topical treatment to the posterior urethra is, therefore, necessary in the great majority of cases.

6. Posterior urethritis is not a complication, but a natural phenomenon of gonorrhœa.

WITHIN the last few weeks a very rare case has attracted the attention of our profession. A man who, although having his whole larynx extirpated, is able to speak clearly, loud, and correctly. The case belongs to Dr. Hans Schmidt, of Stettin, who demonstrated the case in the medical society recently.

Pal——, aged forty-five, male, was operated upon seven years ago for a probable carcinoma of the larynx. The whole larynx and its immediate surroundings were removed The œsophagus was opened twice, leaving œsophageal fistulæ which interfered materially with the after treatment. The patient was plied with bougies daily, in order to keep up the relationship between the mouth and œsophagus on the one hand, and the air passages on the other hand. Although the greatest care was taken, the patient grew steadily worse, and after begging to be released, was sent to his home to die, as it was believed. Dr. Schmidt was greatly surprised to find the patient, who could not utter a word when released, suddenly reappear in perfect health, and speaking fluently. The conditions were the following: The air-passage ended where tracheal fistula existed, in which there was a canula. From this fistula, in an upward direction toward the œsophagus, there was no connection. A careful examination determined the following conditions: A powerful tongue, strong palatine arches, large hypertrophic tonsils, and a pharyngeal wall which was tilted forward. With a head mirror looking downward was discovered a round opening, which showed the entrance to the œsophagus, and which appeared to enlarge downward, like a crater. This opening changed its form. It assumed an oval shape, both sides seemed to lie together when the patient intonated, and from behind a small partition could be seen during intonation; besides, small air-bubbles could be noticed rising and bursting.

It was of the greatest interest to discover how this patient phonated. Laudois and Strübing examined him and expressed the opinion that the voice was formed in that space which was regarded as a vacuum. In the latter space the air was taken in and forced out. In this space, and in a second space lower down toward the œsophagus, sound was formed, which was utilized in the formation of vowels and consonants. The latter deductions seem different from Professor B. Fraenkel's examinations. Professor Fraenkel found that the patient was able to intonate as well when his tongue protruded as when it did not. The tongue can therefore be excluded from sound formation. Fraenkel further believes that sound formation is the result of a three-cornered slit (lip shaped) in the œsophagus. Where does the patient obtain the air necessary for the production of sound? Fraenkel believes that the patient, prior to phonation, by a suction process draws air into the œsophagus, then the glottis of the œsophagus narrows itself, and now in an expiratory manner presses the air out in order that the compensatory vocal organ shall vibrate. This demonstration showed a cure—by nature—which we physicians can envy. Here is the "vis medicatrix naturæ" in her grandest form. —From Berlin Letter to the *Record.*

SYMPHYSEOTOMY.[1] By DR. BYRON STANTON, Cincinnati, Ohio.—Dr. Stanton said that this operation was one of recent adoption, though not of recent origin. Great mortality attended its performance in former times, while at present it has almost complete exemption from danger when proper antiseptic precautions are observed and where no complications have arisen from too long delay of attempts at extraction. This operation is destined to take the place of embryotomy and Cæsarean section in many cases, and supplants the induction of premature labor in frequent instances. The operation causes but little pain, but should be done under an anæsthetic. Repair is speedy, consolidation in from three to four weeks being the rule.

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[1] Abstract of a paper read before the Cincinnati Obstetrical Society, March 16, 1893.

All diameters of the pelvis are increased by symphyseotomy, and the result with due precautions does not affect consolidation of the pelvis or subsequent walking powers of the patient. The operation is applicable to sacro-coccygeal deformities and to normal pelves where there is unusual size of fœtus. According to most authorities 77 mm (3 in.) is the extreme to which the pubic bones should be separated, although some operators have gone considerably beyond this limit. For successful results in symphyseotomy the best sanitary condition should exist. The operation must not be deferred until shock or exhaustion increases the danger. After preparations are carefully made, as for laparotomy, the incision is made from one and one-half to three inches. A female catheter is passed into the urethra; with this as a guide the knife is passed until its extremity projects under and in front of the symphysis. The knife generally used is that devised by Galbiati, a sickle-shaped, probe-pointed bistoury with a thick strong blade. The metacarpal saw has been used but is objectionable, as one death has resulted from its use. The wound is covered with iodoform gauze 1 : 4,000 and delivery effected naturally or with instruments, or by version. After delivery the wound is closed with sterilized ligature silk, silkworm gut, and protected by antiseptic measures. A tight binder or other means is used to secure fixation of the pubic bones. The sutures may be removed in six days ; the patient should be kept in bed until consolidation is complete. She should have frequent bichloride vaginal douches.

There have been thirteen operations in the United States in three and a half months. With proper care and a favorable case there should be no death other than will occur occasionally in a parturient woman. The revival of symphyseotomy is stated to be the most important advance in obstetric surgery since the general adoption of abdominal section for the treatment of extra-uterine pregnancy.—*St. Louis Med. and Surg. Jour.*

SANITARY.

PREVENTION OF DISEASE.

By James G. Porteous, M.D.

The often reiterated injunction in regard to the treatment of disease, "remove the cause," naturally brings the suggestion, why not remove the cause first, and thus prevent the disease.

From the earliest times the use of the charm and amulet shows the desire to prevent disease and death, and, perhaps, the case of Achilles shows how small an oversight may admit them ; and even now it is often easier to secure the use of an infinitesimal dose of belladonna to prevent scarlet fever, or the wearing of a camphor bag charm for any contagious disease, than to secure the use of common sense and intelligent precaution.

How many of you have ever convinced a woman, or, for that matter, a man, that their wearing narrow shoes had anything to do with producing corns, or that they were not more comfortable than broad ones. They may admit that their neighbor suffers from a tight shoe, or dress, but not they—and it is the same with almost every community in regard to their water supply, or their filthy streets.

The study of the cause of disease is one of the most fascinating, and, naturally, precedes the prevention, but so much has been said and written on the subject, especially since the discoveries of Pasteur, Koch, Shakspear, and a host of other investigators in bacteriology, and, while much more is to be achieved in the same line, I will confine this brief paper to the every day application, instead of the theory or history of the matter.

It is only by the persistent, constant and intelligent application of these great truths by the mass of the medical profession that the greatest good can accrue to mankind. While very few deny the immense benefit derived from and shown by the practical stamping out of small-pox, the intelligent control of cholera and typhoid fever, the prevention of the dreaded group of disease, septicæmia, hospital gangrene and traumative erysipelas, which formerly followed the knife of even the most brilliant surgeon, and are now so seldom heard of—yet it must be admitted that in some ways they have been indirectly responsible for a certain amount of harm. The feeling of immunity from immediate death has led to many an unnecessary operation, and, I believe, the unsexing of many a poor woman. The after results have not always been so carefully studied.

The discoveries of Pasteur and Koch have been drawn on, and the shadow of their methods added to the glamor of mystery used to impose on a credulous public such institutions as the "Keeley Cure," the "Silver Ash Cure," and the "Amick Cure," and have given a certain class of physicians and self-styled philanthropists a chance to cloak their greed for dollars under the pretense of benefitting suffering humanity.

The celebrated Mr. Hart says of this class of practitioners:

"As to the rule which prohibits the medical man possessing or profiting by any secret remedy: not only is this an offense against professional morality, but it is a source of great public danger as well.

"From traditional law, and in virtue of the mission of the physician or priest, both are alike the common birthright of humanity, and any man who, for profit, keeps as a secret a new treatment, or a new doctrine, is a traitor, not only to his profession, but to all humanity. Moreover, no respectable physician should advertise. That is the method of a quack."

And, "there is no distinction between the quacks who have medical degrees and the quacks who have not." There are, perhaps, a few men in the profession, even in this country, who would do well to ponder the words of the great English editor, when they see their names flaunted in the daily press, or posted on fences and telegraph poles in connection with wonderful cures, or as medical directors of these secret institutions, sanitariums and patent treatments. But all this makes it more an obligation on the legitimate, honest profession, of which we are all proud, to carry to practical conclusions the discoveries of our our great leaders, in a way which shall be of the greatest good to mankind, and in a way to show the world that we have higher aims and interests than the mere gathering of shekels. The extensive prevalence of typhoid fever (properly considered a preventable disease) is due more to the indifference and parsimony of municipalities and local Boards of Health, than to a lack of effort among physicians. When a community, either a town or city, will persist in drinking their own or others' sewage, especially that containing human excrement, and tolerate filthy streets and premises, they must expect diarrhœa and this form of fever, which will not be done away with while dollars and cents are valued above life and health. The milk supply should be supervised by the State so that the dairies, stables and cows may be regularly inspected as to health of the cattle, and cleanliness of the stables and utensils, and of the methods of handling the milk. Thi cannot be properly done by local Boards of Health. The State Inspectors now have power to examine and condemn cattle and milk, and, in certain cases, impose or collect fines, but it is done so seldom that it loses half its force. There is little doubt that disease is at times conveyed through this important article of food. The amount of filth in milk, as delivered by farmers to condensed milk factories, is disgusting, but the process of manufacturing, and the admirable and scrupulous cleanliness in every department of these factories makes it much less dangerous than milk containing similar filth and not subjected to cleansing and heating.

I have seen men while milking deliberately dipping their fingers in the milk and then continue the milking, practically washing both their hands and the cows teats in the milk which some one was expected to drink.

Little can be done by the State to prevent syphilitic diseases in the face of present public opinion and a large class of the daily press. who wish this matter ignored and raise their hands and voices in holy horror when State control is mentioned, though the same papers may have columns of advertisements for cures, which do not cure, although couched in the seductive terms of "renewing manly vigor, etc." But they bring dollars, and the disease drags along its weary way, and leaves its trail of ruined men and women and their tainted offspring.

The prevention the physician can offer is slight, as the harm is generally done before it comes under his observation, and his advice for prevention given without authority has little weight.

Perhaps in no single disease is there at present so broad a field for prevention of disease, and which calls so decidedly for constant care and untiring vigilance among physicians, as tuberculosis, which is credited with destroying the most lives of any single disease. It is undoubtedly infectious, and like cholera, only communicated by the introduction of a specific germ, "bacillus tuberculosis" (discovered by Koch, and the discovery publicly announced March 24, 1892), into the system of a healthy person principally in three ways:

1st. Through the stomach;

2d. Through the lungs, or

3d. Through an open wound.

(I quote from a tract issued by the Pennsylvania Society for the prevention of tuberculosis.)

Through the Stomach.—"When people eat imperfectly cooked tuberculous meat, drink milk from badly diseased tubercular cows, eat food out of the same dishes or with the same eating utensils as consumptives, eat food with unwashed hands after having been in contact with tubercular patients, eat food that has been handled by persons suffering from tuberculosis, put coins, articles of toilet, or other small objects that have been handled by persons suffering from tuberculosis, into the mouth, use musical instruments or implements which, when in use, are placed to the lips or in the mouth, and which have been used by consumptives, kiss upon the lips persons suffering from consumption, or swallow tubercular pus in the form of dust which has accumulated in the throat or fauces during the act of respiration."

Secondly, through the Lungs.—When people inhale "dried-up tubercular pus in the form of dust."

Thirdly, through Wounds.—"When people get tubercular pus into an open cut or an abrasion of the skin."

There is a chance that the exposing of dressed meat on the sidewalks may be a source of danger, as it could easily be infected by the filthy dust from the street, and possibly by the industrious fly, who divides his time impartially between the gutter and the meat.

Thousands of dollars have been spent, and very properly, in the last two years to prevent cholera in this country.

Dr. A. Gihon, Medical Director U. S. Navy, in his opening address to the Section of Hygiene in the recent Pan-American Medical Congress, gave a graphic description of his experience on cars and steamer while traveling with consumptives, and the dangers of ordinary travelers from this cause; yet it should be remembered that most of these consumptives, crossing and re-crossing the continent by thousands, are usually doing so by direction of their medical attendants, and generally without the slightest instruction as to protecting their fellow travelers.

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MISCELLANEOUS.

THERE seems to have been a vast amount of exaggeration in the reported spread of cholera through the Mecca pilgrims. Up to August 15 two caravans had arrived bringing 149 adults and five children, conveyed by 299 camels. Twenty-six of the pilgrims were suffering on arrival from "ordinary diseases;" the health of the others was good, and no cholera existed among them. The sanitary agent of the station does not state if cholera existed among them on the way.

Up to this date 19,860 pilgrims have finished their quarantine and left Torr. At the station at date of latest information there were encamped 5,664—all Egyptians. No case of cholera has occurred since August 2. In the hospital for ordinary diseases there are 150 patients, the prevailing illness being still diarrhœa and dysentery. Outside the pilgrims one case of cholera has occurred, in a bashi-bazouk acting as policeman in the village of Torr. The nature of the case was ascertained both clinically and by bacteriological examination, but unfortunately the medical men have been unable to trace how the disease was caught. Dr. Ardouin Bey, the Inspector General, who is now on the spot, throws out the crude suggestion that the man "may" have had about him some soiled effects of a choleraic pilgrim, but gives no explanation as to his connection with the pilgrims, how he came by these effects, "if even he had them," nor how they gave him cholera. None of the others who have been handling infected clothing, attending to the sick, washing the dead, have taken cholera.

The great Egyptian caravan, or Mahmal, with the Holy Carpet, is expected shortly shortly to arrive by land at El Widje, whence a special steamer will transport the members to Torr to undergo their quarantine. The arrival of this caravan is practically the end of the return pilgrimage.

The 6,000 to 7,000 pilgrims who were stranded at Yambo for want of means of transport, and reported to be starving, have been relieved by the Egyptian Government, which sent them provisions, and also steamers to transport them to Torr, where they are now arriving in large numbers. No case of cholera has occurred among them on the passage nor since their arrival. There still remain at Yambo about 1,200.

A few Egyptian notables organized a subscription for the relief of their co-religionists at Yambo, and, according to a local paper, have contracted for the supply of 10,000 okes of biscuits, ten barrels of olives, and ten barrels of cheese. This fare will no doubt be greatly relished by the majority, but is hardly dietetically suited for the diarrhœa, dysentry, and fever from which they were reported to be suffering.

Several sections at Torr have finished their quarantine and wait for means of transport, the steamers which would have taken them on having been sent to Yambo to relieve the pilgrims there. Besides the arrivals by steamers there have been several arrivals from El Widje, by the *Sambouks*, chiefly of pilgrims for Kosseir and places on the Red Sea coast. These are all obliged to pass by the quarantine station of Torr.

A new and useful feature in the quarantine operations at Torr this year has been a systematic bacteriological investigation into the nature of the numberless cases of diarrhœa formerly regarded by many as "suspected cases." Dr. Ardouin Bey reports that the sanitary agent and one of the doctors of the Turkish mission to Torr superintending the Turkish pilgrims have made daily bacteriological researches, and are of opinion, from this and from clinical observation that none of the cases of intestinal complaint under treatment at the station are of choleraic character. So strongly did some of the medical members of the Quarantine Board hold the opinion that these numerous cases of diarrhœa among the pilgrims were in times of epidemic only a modified form of cholera capable of propagating the disease, that one of them, the delegate of an Eastern European Power, during the return pilgrimage of 1890, proposed to the Board to prolong the quarantine until the last case of diarrhœa had disappeared—this would probably have coincided with the disappearance of the last pilgrim—and the proposal was rejected.

All the pilgrims for ports in the Mediterranean and Levant may now be said to have passed the Suez Canal, those remaining at Torr and to arrive from Yambo being nearly all Egyptians.

All ships for the canal are examined, before entering, by the sanitary agent at Suez, who has reported favorably on the general health in every case. No complaint of overcrowding has been made by him, except in the case of the British steamship Etna, which he reports was very much overcrowded.

The usual annual recriminations among the different medical staffs at Torr which takes place at the end of every pilgrim season are beginning to be talked of. The Turkish and other commissions accusing the staff of the Egyptian Quarantine Board of inefficiency—laxity in surveillance, inefficacy of their disinfection, etc. Although the work of the station is entirely under the control of the agents of the Egyptian Quarantine Board, the Turkish authorities have of late years sent from Constantinople a medical staff to aid in superintending the Turkish pilgrims. The Austro-Hungarian Government also sends a medical man to superintend and report on the Bosnians and Herzegovinians. A little national and professional jealousy sometimes shows itself rather bitterly, but on the whole it serves as a wholesome criticism for the Egyptian board to benefit by.

A HEAVY, DULL HEADACHE situated over the brow and accompanied by languor, chilliness, and a feeling of general discomfort, with distaste for food which sometimes approaches to nausea, can generally be completely removed by a two-grain dose of the iodide of potassium dissolved in half a wine-glass of water, and this quietly sipped, the whole quantity being taken in about ten minutes. In many cases the effect of these small doses has been simply wonderful. A person who a quarter of an hour before was feeling most miserable and refused all food, wishing only for quietness, would now take a good meal and resume his wonted cheerfulness. The rapidity with which the iodide acts in these cases constitutes its great advantage.—*Alienist and Neurologist.*

THE London Clinical Society appointed in 1889 a committee to investigate the period of incubation of the infective fevers.

The report of this committee has recently been received and contains the following interesting conclusions:

Diphtheria, two to seven days ; oftenest two.

Typhoid fever, eight to fourteen days ; sometimes twenty-three.

Influenza, one to four days ; oftenest three to four.

Measles, seven to eighteen days ; oftenest fourteen.

Mumps, two to three weeks ; oftenest three weeks.

Rubeola, two to three weeks.

Scarlet fever, one to seven days, oftenest two to four.

Small-pox, nine to fifteen days; oftenest twelve.

Further investigations were made with regard to the time and duration of the infective period.

Diphtheria was found to be infective during the period of incubation, attacks and convalescence.

Mumps and rubeola are also infective for three or four days before the onset of the parotiditis and appearance of the rash.

The contagiousness of the measles speedily disappears, and does not continue in disinfected persons for over three weeks.

Typhoid fever is infectious from the time of onset until two weeks after the fever has gone and convalescence set in.

As is well known, the contagiousness of scarlet fever varies greatly, but is generally continued a very long time—certainly until desquamation ceases, and sometimes as long as eight weeks.

The figures put forth by the committee of the Clinical Society will doubtless excite some discussion and controversy, but they are based upon a large amount of clinical data.

MADAM RUPPERT, of complexion lotion fame, has recently had the pleasure (?) of paying a fine of $25 and costs at the instance of the Pharmaceutical Society of Ireland. The conviction was secured under the "poisons act," forbidding the sale of certain poisons by anyone not a licensed pharmacist. The prosecution was able to show that each bottle of the "tonic" contains on an average 8 grains of corrosive sublimate, and, furthermore, that each bottle, which retails for $2.50, costs just one cent to manufacture. As the manufacturer and her agents are liable to a similar fine for every bottle sold hereafter, the sale of this preparation is quite naturally on the decline.—*Ex.*

FOR THE WASTING DISEASES OF CHILDREN, whooping cough, and in many cases of bronchitis, hydroleine, a pancreatized preparation of cod-liver oil has been extensively used with very satisfactory results at the Harlem Hospital Dispensary. It is spoken of in most commendatory terms by members of the medical staff of the New York Foundling Hospital, the Brooklyn Orphan Asylum, Kings County Hospital, St. John's Hospital and other public institutions in New York and Brooklyn.

PHENOSALYL.—This is a new antiseptic produced by heating together carbolic, salicylic and lactic acids, and, when cold, adding a mixture of menthol and eucalyptol in glycerin. The product is a more perfect germicide than carbolic acid, and not nearly so poisonous.—*Lancet-Clinic.*

THE TREATMENT OF THE MORE SEVERE FORMS OF VOMITING OF PREGNANCY.—Dr. Routh (*Der Frauenarzt, March,* 1893) states that in seven years' practice he has always been able to arrest the vomiting of pregnancy by brushing the cervix and the lower cervical canal with a mixture of equal parts of iodine, iodide of potassium, spirits of wine and water. In general, vomiting ceases immediately after the application. If vomiting should recur the cervix should again be brushed. Generally after this the vomiting will be permanently relieved.—*Medical Progress.*

IN the United States between two hundred and three hundred persons are annually executed by law. To ruthlessly destroy the bodies of so many criminals, when they might be, and ought to be, used for the advancement of science, is one of the most notable extravagances of this utilitarian age. It is an absurd custom, inherited from our ignorant and savage ancestors, who knew nothing of bacteria and the value of vivisections.

> "The base Indian threw a pearl away
> Richer than all his tribe."

In the eyes of the devout physician this shameful, inexcusable waste of first-class physiological material is itself a crime. It is undoubtedly proper to exterminate murderers and rapists for the protection of society, as we do Canada thistles, rattlesnakes, and other noxious things; but the criminal is a man, and as such, even if he has forfeited his life, is entitled to die by some of the processes ordained by Nature for the destruction of human life.—*Extract from Ex.*

TREATMENT OF WARTS AND OTHER CUTANEOUS EXCRESCENCES.—According to Dr. Kaposi, Professor of Dermatology and Syphilography at the Medical Faculty of Vienna, solitary papillomata of the skin are best treated surgically, for example, by removal with a sharp spoon. The operation is attended by smart hæmorrhage, but this is easily controlled by pressure or the cautery.

This method of treatment is not applicable, however, in cases of multiple warts, especially when these occur on the face, because of the disfiguration arising from the permanent cicatrices left by the curette. Under these circumstances one should have recourse to such means as will bring about the detachment of the warts without permanently damaging the skin. This result may be secured by the application of fuming nitric acid or tincture of *thuia occidentalis*.

Exuberant vegetations should be dusted over with resorcin or salicylic acid; these substances may also be applied in the form of a 10% or 20% plaster. It should be borne in mind, however, that resorcin acts as a caustic when left in prolonged contact with the skin. Care should be taken, therefore, that the healthy epidermis around the vegetations is not destroyed by the remedy. The application of the plaster should be discontinued, therefore, as soon as the desired effect is produced.

The same method may be employed in the treatment of corns and other horny thickenings of the palms and soles, even if they do not present a distinctly warty appearance.

In cases of multiple warts of the face, Prof. Kaposi recommends the application of the following paste:

℞.	Sublimed sulphur	ʒ v.
	Pure concentrated acetic acid	ʒ iiss.
	Glycerine	℥ ij.

Mix.—For external use.

The paste is applied to the warts either with a brush or spread over small pieces of linen. This is done at night, the paste being washed off the next morning. The application is repeated for several days in succession. Under the influence of this treatment the warts shrivel up, become blue and ultimately drop off spontaneously.

Another very simple method employed with success by Prof. Kaposi in the treatment of facial warts consists in covering the affected parts with pieces of flannel smeared with soft soap. These are left in position for twenty-four to forty-eight hours, according to the degree of sensitiveness displayed by the patient, until the skin becomes red and shrivels up. After removing the flannel the warts should not be washed nor even wiped; they become spontaneously detached in about a week.

In Prof. Kaposi's opinion electrolysis is the most efficacious means of treating nævi molluseiformes; a needle connected with the negative pole of a battery is introduced into the tumor, while the patient holds the positive electrode in his hand. A current of from 1 to 2 milliamperes should be used and the application should last about 30 seconds. It is repeated at the end of a week or fortnight. Large nævi require the application of the galvano-cautery or some other caustic.—*Ex.*

A MODIFIED CANNON BALL TREATMENT OF OBESITY.—Dr. Felkin of Edinburgh, uses an India-rubber ball, three and one-half inches in diameter, almost filled with five and three-quarter pounds of shot, in the treatment of chronic constipation, anæmia, and obesity. The patients are instructed to roll the ball from right to left round the abdomen for five or ten minutes, night and morning. One of his patients had lost ten inches in girth after five months' regular use of it. A rather smaller ball, with a less quantity of shot, he finds very useful in inducing a regular action of the bowels in young girls, who so frequently suffer from habitual constipation; this plan obviated the need for constant dosing.

INTUBATION IN WHOOPING-COUGH.—Dr. Julius Taub, of Budapest, has resorted to intubation in whooping-cough, on the ground of the investigations of Hertf, which show that in this disease the most markedly inflamed and sensitive portion of the mucous membrane is that situated between the rima glottidis, and that the attacks of coughing are always provoked by irritation of the larynx at the level of the glottis. He, therefore, believes that, in consequence of the anæsthesia produced by the introduction of the tubes, relief may be afforded, and recommends intubation in view of the excellent results derived from it in two cases of pertussis, in children of six to eight months. The tubes were allowed to remain for three to five hours, and were introduced several times. After nine and fifteen days, respectively, improvement ensued, and a cure resulted four weeks later. In the author's opinion this procedure is only suitable to children under two years.—*Therap. Monatshefte*, July, 1893.

MODERN SAMSONS.—A large number of physicians were recently invited to witness the alleged miraculous feats of strength performed by an exhibition "strong man" in this city. We can hardly believe that many of the medical audience were greatly astonished at the performance. The man is undoubtedly very strong and has an interestingly huge muscular development. But the feats which he performed were not so very much beyond what amateur athletes can do. The lifting of a "human dumb-bell," *i.e.*, an iron rod with a small man at each end, is accomplished partly by a trick of strength well known to those who practice this kind of exercise. The supporting of two small horses and a very small pony on a platform was also more ingenious than masterful. It is unfortunate, at least from the medical standpoint, that the man does not go through some straightforward tests that would show in a more exact way how much he exceeds the average man in muscular power. Thus the experiments of Rey and Maréchal show that a man in good health has a power of hand pressure equal to forty or fifty kilogrammes and a force of prehension equal to one hundred and thirty-two kilogrammes.

The following are the measurements of the man, and given out as correct: Neck, 18½ inches; biceps, 19½ inches; forearm, 17 inches; chest, normal, 52 inches; contracted, 46 inches; expanded, 58 inches; waist, 29 inches; thigh, 26¾ inches; calf, 18 inches; height, 5 feet 8½ inches; weight, 199 pounds.

The most extraordinary of these figures are the chest measurements. The average man weighing 145 pounds, 5 feet 8 inches high, has a chest measurement of only about thirty-four inches. The measurement of professional athletes and pugilists rarely goes much above 40 inches.—*Record.*

THE ETIOLOGY OF WHOOPING-COUGH.—Dr. Ritter, of Berlin, has been making some researches into this subject. When it was possible to obtain any expectoration at the end of a paroxysm of coughing, the sputum was received into a sterilized vessel and carefully washed with distilled water. Small opaque particles were generally found, and these were removed with due precautions and cultivated on aga-aga. Small colonies appeared within twenty-four hours. Under the microscope these were found to consist of diplococci. The colonies were opalescent and grayish in color, and adhered firmly to the surface of the cultivating medium. These diplococci are different from those described by Fraenkel, as present in pneumonia. Although his experiments on animals were not yet completed at the time the report was made to the Berlin Medical Society, yet Dr. Ritter had already obtained results which seemed to point to this microscopic agent in the production of pertussis.

CERUMEN.—Impacted cerumen, by aural text-books, is not considered a foreign body, but it rather seems to me that it certainly plays the role of such. It obstructs the canal in a similar manner, and after a time makes the canal very sore. In the removal of this plug of cerumen, where there is much tenderness, oil should be poured into the canal and allowed to remain for a considerable length of time. This softens the dried wax, and it can then easily be removed. The syringe and hot water, to which has been added a small quantity of bicarbonate of soda which acts as a solvent, works admirably and should always be used in preference to a probe or hook in this case. After the cerumen has been removed, the post-nasal cavities should be examined, as there will be found existing catarrhal trouble in all probability. This should not be overlooked, but be treated, as the impaction is a symptom and not the disease itself.

ABSCESS OF THE PANCREAS.—Dr. Whitton describes the case of a man who had fallen from his dray in a state of intoxication, and was admitted to hospital with four ribs broken. Next day there was some tympanites, and he was coughing a good deal. The third day he began to vomit a bilious fluid, and complained of a fixed pain just above the umbilicus. For a week the patient's condition fluctuated, the vomiting and pain being the chief symptoms, though neither of them was constant. At the end of this time he seemed worse. There was some diarrhœa, when at 3 P.M. he began to vomit yellowish fetid pus, and gradually sank, dying at eight o'clock the same day. At the *post-mortem* some recent pleuritic adhesions were found on the right side in the neighborhood of the fractured ribs, and the liver was friable; but the chief result was the discovery of an abscess in the pancreas, penetrating the duodenum about eight inches from the pyloric end of the stomach.—*Australian Medical Gazette.*

IN AN EDITORIAL entitled "Some Therapeutic Problems Awaiting Solution," the *Lancet* says: Complaints are frequently made regarding the backwardness and slow progress of therapeutics. In view of the complexity of the phenomena which are involved, the wide range of individual idiosyncrasy, and the impossibility in many cases of instituting anything in the nature of exact experiment, it is possible that these complaints may be a little unreasonable. No one doubts that apid and brilliant progress is continually being made in our knowledge of the pathology and the clinical history of disease, and when the conditions of the question are fairly considered it will not seem surprising that therapeutic progress should follow, rather than precede, advances in pathology and clinical medicine. However this may be, it is desirable that we should from time to time review our position regarding some of the as yet unsolved or imperfectly solved problems of medicine. Time leaves little unchanged, and even in the absence of any notable experiments or discoveries it will always be found that we are from year to year insensibly altering our attitude toward the great therapeutic controversies of our age. Experience always teaches something, even if it be only caution and skepticism, and every day facts arise which tend either to confirm or to undermine provisional theories and working hypotheses. Truth prevails very slowly, and error is as slowly expelled; but the intellectual atmosphere is ever changing. Doctrines that seemed to be probable a decade ago appear to be hardly worth contending against to-day. Theories that gave a passing satisfaction to the thoughtful physician of the last generation seem to be strangely outworn to-day, although little may have been accomplished in the way of tangible disproof.

We may find illustrations of our remarks in such diseases as syphilis, phthisis, pneumonia, diphtheria, and typhoid fever. It is not so long since the revolt against the abuse of mercury was in full swing and had gone so far that certain accomplished observers maintained that some of the worst features generally attributed to the disease were really due to the remedy. Now we feel that this question has passed out of the sphere of serious discussion. With a practical unanimity we acknowledge the value of mercury, and the only problems that await solution in this connection are the proper form of the drug to employ in a given case, the correct dosage, and the mode of administration. Phthisis affords a more difficult case. For the present, treatment by inoculation stands condemned, and it is not likely to be generally revived unless more extensive and authentic evidence of its utility than that which first gave it vogue is forthcoming. We have not yet, however, finally determined whether the antiseptic treatment of phthisis is as sound in practice as it seems to be plausible in theory. The use of antiseptic inhalations, though much less general than it was a few years ago still holds its ground to some extent. We would commend to the profession the determination of the following question, which lies at the root of the problem: Supposing it be granted that bacilli are the cause of phthisis and that their destruction is the legitimate object of the efforts of the physician, is there any evidence to show that an antiseptic solution or vapor can reach the seat of the disease in sufficient strength to effect this object. We fear that, for the present at least, there is no such evidence; and without discouraging further experiment we very decidedly deprecate the use of inhalers and inhalations which are theoretically indefensible and manifestly ineffective. Then, again, with reference to the same disease, much advantage would arise from the diffusion of more definite views regarding the different effects of the various sanatoria upon its progress and palliation or cure. The high altitudes, the ocean voyage, and the desert air are all known to possess considerable efficacy, but although the literature of the subject is rapidly increasing, it cannot be said that the profession generally has assimilated the opinions of experts on these subjects.

Pneumonia is still more or less of an opprobrium to the therapeutist. Vigorous stimulation still commands the approval of the great majority of adherents, but thoughtful physicians can hardly repress a doubt as to whether it is universally applicable, and whether a place might not still be left for venesection and antimony. Sweeping generalizations in medicine are hardly ever true, and the time may come when greater therapeutic distinctions will be drawn between the different types of cases, to the great advantage of the patients. Then we need further to make up our minds whether cardiac failure is really the chief source of danger in pneumonia, and, if it be so, whether we have made sufficient use of our great cardiac tonic, digitalis.

It is not so long since one of the great battle grounds of practical medicine was the identity or non-identity of laryngeal diphtheria and membranous croup. This question has never been authoritatively settled, and although the doctrine of identity has tended to prevail, somehow or other the question has lost its interest, and we have come to see that its practical importance has been overrated. What is certain is the clinical fact that a membranous affection of the pharynx is only moderately perilous, while a membranous affection of the larynx is excessively dangerous, and in young children is very frequently fatal. In view of these clinical facts, the question of the precise pathological character of the membrane in the different cases becomes of minor interest. More important are the questions whether the removal or destruction of the membrane is ever advisable and when tracheotomy should be performed. The former question is now usually answered in the negative; and the latter raises one of the most difficult points in therapeutics, and one which is further rendered perplexing by the fact that foreign experience seems to be at variance with our own.

As regards the last disease on our list—viz., typhoid fever—we greatly need more authoritative teaching and more defined views on two questions: Firstly, is intestinal antisepsis the legitimate aim of treatment, and, if so, which of the numerous antiseptics is the most suitable one? and, Secondly, is antipyresis generally advisable, and, if so, are we to trust to medicinal antipyretics or to the cold bath? To discuss these questions adequately would take us beyond our present limits, but we commend them to the thoughtful attention of our readers. We may merely suggest that intestinal antisepsis is still upon its trial, and that as regards antipyresis British practitioners have perhaps unduly neglected the external application of cold.

TREATMENT OF INFANTILE CONVULSIONS.—"M. Jules Simon recommends the following line of treatment of infantile convulsions: 1. Empty the digestive tract by an enema and by tickling the fauces to promote vomiting. 2. If the attack continues, administer ether or chloroform on a handkerchief. 3. Administer by the mouth, or if necessary, by enemata, repeated doses of the following mixture: Chloral hydrate, fifteen grains; bromide of potassium, fifteen grains; syrup of codeine, ten drops; tincture of musk, ten drops; tincture of aconite, ten drops; orange flower water, three ounces and a half—this quantity to suffice for twenty-four hours. 4. When the attack is very grave, give a warm bath and apply a small blister to the back of the neck or the epigastrium, leaving it on for three hours. Antiseptic precautions should be observed and a poultice subsequently applied."—*Lancet.*

IN AN ARTICLE in the *Lancet*, on massage in diseases of the skin. Dr. A. Symons Eccles arrives at the following conclusions: The best results following the use of massage in skin diseases have been those obtained in cases which may more correctly be regarded as belonging to a wider field than that which is, strictly speaking, occupied by dermatology, though the manifestations, being largely marked by interference with cutaneous nutrition, fall most naturally within the limits of skin affections. Enfeebled and sluggish circulation resulting in impaired vascularization of the skin, with the consequent peripheral ischæmia, cyanosis or chilblains arising therefrom, and conditions apparently closely allied to Raynaud's disease, are unquestionably greatly modified by a systematic course of massage, which not only proves a valuable adjunct to the general hygienic measures appropriate to such cases, but also acts as a prophylactic against the recurrence of the more painful sequelæ of defective peripheral circulation.

In surveying the field of modern pharmaceutical journalism, a first glance enables us to perceive the distinctions prevailing between the legitimate periodicals of various types. We observe here and there the handiwork of men who have gained distinction in scientific research; and uniting their authority as original workers with a wide erudition, a marked literary faculty, and a numerous following among their colleagues, they have been enabled to impart power and worth to the media which they have chosen for the regular communication of new ideas and valuable discoveries Such a power in journalism was the lamented Maisch; such are the few able men yet in active service, whom it would be invidious to mention by name.

Another class of journals attracts our notice by virtue of its purely modern features and its indication of conditions which are more or less recent. We refer to the few valuable pharmaceutical periodicals which, published avowedly in connection with large manufacturing enterprises, devote themselves to a presentation of practical methods, data and suggestions, drawing from the wealth of experience accumulated in establishments where every conceivable form of pharmaceutical is produced on a large scale and where able men are pursuing special and original researches in connection with their routine duties. It cannot be denied that publications of the latter type have been of eminent utility to the practical pharmacist and have proved creditable to their projectors.

Without dwelling on the peculiarities of yet another class of journals, which devote themselves more to the trade interests of pharmacists and to trade politics than to real pharmaceutical science and art, we may pass rapidly to a consideration of the mongrel and hybrid sheets which are at present infesting pharmacal journalism, and which, in reality, present naught save excerpts from the secular dailies or from occasional professional papers, advertisements of out-and-out nostrums, and venomous attacks upon reputable manufacturing houses. Such an alleged monthly journal—neither fish nor fowl—lies before us as we pen these lines. Printed upon a pink paper recalling with justice a notorious weekly which may not even be mentioned in polite society, it bears the pretentious device: "A Monthly Journal of Pharmacy in Opposition to Quackery in Pharmacy." In the upper corner is the name of its manufacturing parent—a name which has become a synonym for every form of counter-nostrum and non-secret piracy, beside which the sale and laudation of patent medicines becomes respectable and meritorious. "In Opposition to Quackery in Pharmacy!" Mark the phrase, and render to this pharmaceutical Pecksniff the tribute of admiration due to such sublime effrontery.

Of the eight pages composing this literary nondescript, after allowing for the space devoted to a feeble and verbose attack upon a firm whose brilliant and honorable success has been the envy and the despair of the whole tribe of non-secret pirates, the entire remaining matter is composed of extracts from pharmaceutical and secular journals, and of advertisements lauding various imitations of well known patented cough-cures. Thus the offspring and parent present the same familiar family features. The manufacturer in question never originated a thing in his life; his entire pharmaceutical career has been a long succession of imitations and appropriations; and the wretched journal to which he has given life now follows only too faithfully in his footsteps. As literature it is worthy of its progenitor and will receive the same quantum of esteem from the intelligent pharmacist as has been accorded in the past to the nostrums which are indissolubly linked with his name.

As pitiable a waste of time and space as is any allusion to such journalistic rubbish, we cannot resist the temptation to expose its pretentious claims and its laughable poverty of brain and merit. Our task is done, and in dismissing an unworthy theme we counsel the "editor" of the poor, puny sheet to modify his motto. A more fitting device would be any one of the following:

"We are in it for the stuff."

"What are we here for?"

"Science for revenue only!"—*Bulletin of Pharmacy.*

MUCH STRESS HAS been laid upon the melting-point of crystallized organic preparations, both as a means of identification and as a proof of their purity, or freedom from related compounds produced in their manufacture. Especially has this been true in the case of the alkaloids: we find, upon consulting the pharmacopœias and other authorities, that one of the prominent requirements, in most instances, is that the alkaloid shall have a certain "*melting-point*," at which it ceases to be a solid body and is resolved into a liquid. Furthermore it is a fact of which anyone can easily convince himself, that hardly two of these authorities agree concerning the melting-point of certain of the alkaloids or their salts. The thought naturally intrudes itself: Why this diversity of opinion relative to compounds which have been known for years?

We hazard the opinion that in some instances the alkaloids or alkaloidal salts have no *true melting-point*, but rather a *decomposition*-point:

and investigators have overlooked this fact because, by applying the same manipulation to successive samples, they have obtained results which "in the main" agreed, the experimenter attributing the difference between his results and those obtained by others to a difference in purity.

The alkaloids, being comparatively complex or highly organized bodies, readily decompose into simpler and more stable compounds; this decomposition being easily induced in most of them by the action of many agents, notably acids, alkalies, and particularly heat. Their power of resistance, of course, varies, from that of the delicate salts of physostigmine to the more stable derivatives of strychnine.

What, then, is more reasonable than to suppose that the various results obtained by different individuals are due to the length of time the alkaloid was subjected to the action of heat, the degree of heat applied, or the manner of its application either before or during the determination of the melting-point?

It is true that the published results under discussion were not obtained by inexperienced investigators, but by veteran chemists of broad experience; but even these would not follow exactly the same details in determining a melting-point.

Most notably do the above statements apply to the salts of cocaine; the melting-point of cocaine muriate being variously stated at from 180° C. to 202° C.

Our own observation has led us to believe that these results can all be obtained from the same sample by varying the length of time during which the temperature is being raised from 20° C. or 22° C. to the point of melting (or decomposition).

Having placed the previously powdered and desiccated cocaine muriate in the apparatus used, on gradually raising the temperature we see that the originally white powder becomes somewhat cream-colored, gradually turns a shade darker, then begins to melt at the edges; but at the *same instant* bubbles of gas are formed; the liquefying substance becomes amber-colored, then darker, and by the time the entire mass has become liquid the lower portion has become brownish.

The degree of coloring varies with the purity of the sample, the purest showing the least change, but in all there is an evident decomposition, which, taken in conjunction with the different results obtained with the same sample under slightly varying circumstances, would seem to prove that the *true* melting-point of cocaine muriate cannot be determined.

THE *Medical Times* PRINTS THE FOLLOWING: "It sometimes happens in association with a punctured wound of the eye that an eyelash is cut off or torn from its attachment and transplanted bodily into the anterior chamber of the eye. This, of course, is a very untoward occurrence, because the intruding hair not infrequently sets up severe inflammation, and, if left long enough, it may set up destructive inflammation. Apart, however, from this contingency, if the root-sheath be carried in with the eyelash, this may, and often does, contract adhesions with the iris or cornea and form a cyst, having for contents epithelial cells derived from those of the sheath. In one instance, mentioned by Mr. Henry Power at a recent meeting of the Ophthalmological Society, the last took root on the iris and went on growing until it formed coil upon coil of hair within the anterior chamber. The nature of this curious foreign body was not very apparent, but when it was identified it was removed with a successful result."

A CLEVER OPERATION for malformation of the jaws was recently performed by Dr. Frank Hartley, consulting surgeon at Roosevelt Hospital, and George Howe Winkler, M.D., D.D.S., professor of operative dentistry at the New York Dental School.

Dr. Winkler, to whose attention the case was brought in the first instance, said he found upon inquiry that when the girl was four and a half years old she lost almost the entire lower jaw, on the right side by necrosis, due probably to a blow or fall, which fractured the bone so that it came away almost entirely by the sloughing away of the tissues of the neck under the angle of the jaw and very little through surgical interference. Dr. Winkler found, on examination, that the periosteum had finally filled up with a new growth of bone which did not grow any longer than a four and one-half year old child's should be. The development of the jaw on the other side was normal. The effect was to push the chin around under the right cheek.

Dr. Winkler, believing that if the new growth of bone was sawed through it would be possible to force the chin around in front of the face and hold it there permanently, advised an operation, which was performed as stated by Dr. Hartley.

He made an incision in the neck, under the angle of the jaw, sawing the bone in two. Two hard rubber appliances, one on each jaw, were inserted and fastened to their respective teeth. These appliances brought the chin into its normal position by an arrangement of floss silk ligatures, and were allowed to remain in position for four weeks, while the external wound was healing. When the wound was sufficiently healed the work of inserting the permanent appliances was begun. This was done by soldering upon the lower jaw an upright bolt, which slid up and down on a gold bar soldered to the upper jaw allowing the jaws perfect freedom to open and close, but retaining the lower jaw perfectly in the new position to which it had been brought.

The operation is regarded as highly successful and the good results obtained are sure to be permanent.

THE ADOPTION IN the U. S. P. 1890 of formulas prescribing solids by weight and liquids by measure, and the adjustment of the final product to a definite volume, will be regarded with gratification by pharmacists as well as physicians.

It is scarcely practicable for the nurse in the sick room to administer liquid medicines by weight; while, on the other hand, the familiar teaspoonful and tablespoonful doses are very convenient.

By weighing solids and measuring liquids the busy physician can calculate dosage easily, and need not take into consideration the specific gravity of the liquid employed as a vehicle, at the bedside, where many matters deserving attention unfit his mind for dealing with such intricate and unnecessary problems.

Solids by weight and liquids by measure is also the best rule by which pharmaceutical preparations can be fixed so that physicians and pharmacists can readily calculate the amount of active drug represented by a given volume of a galenical preparation.

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MEDICAL NEWS AND NOTES.

A NEW ANTISEPTIC.—In a recent medical paper published in the *Herald's* European edition the virtues of salacetol as an antiseptic are commended.

According to M. Bourget, salacetol, composed of salicylic acid and acetol, contains seventy-five per cent. of salicylic acid. Though insoluble in water, when it reaches the stomach its components separate, the salicylic acid performing its part as an antiseptic, the acetol being rapidly eliminated after decomposition. Our foreign medical correspondent reports that salacetol has given excellent results in subacute, chronic or gouty rheumatism.

To obtain the best effects from this new antiseptic it should be taken in the morning before eating, and, if it is to act energetically, should be given with a purgative, and especially with castor oil. The formula indicated by M. Bourget is as follows:

Salacetol	2 or 3 grms.
Castor oil	30 grms.

We see that Sir Andrew Clark, the celebrated London physician, was stricken with paralysis the other day. At the time of going to press we have received no further news.

The New York Health Department is very busy vaccinating the people of this city.

It is their avowed intention to vaccinate everybody within the city limits.

Among the first people to be vaccinated are the dry goods clerks, the members of the police, fire and public works departments, and the bank clerks. The latter receive special attention because of the tremendous amount of soiled and otherwise infectious bank notes which they have to handle. The pupils of the night schools are vaccinated just as they are found when the vaccinating corps descends upon them, without previous warning.

We see that Professor Gad, chief of the Experimental Department of the Berlin Physiological Institute, has been granted one year's leave of absence for the purpose of organizing the teaching of physiology in the University of Cleveland, Ohio.

The *N. Y. Medical Journal* says: "One of the New York newspapers lately gave prominence to a most imaginative article on disease of the vermiform appendix. The writer took the position that operations for that disease were done with unnecessary frequency, and cited a case in which an individual affected with it had declined surgical interference and had ultimately *coughed up* his appendix."

We can "go him one better": A correspondent of the *Baltimore Sun* asserts that "there is no such thing in all this world as sewer gas," and, further, that "there is no evidence whatever, in fact, and no ground for believing in the theory, that the emanations from a sewer are in any wise unwholesome."

Treatment of Chloroform Narcosis. Koenig of Goettingen.—Out of seven thousand cases of chloroform anæsthesia the author considers that he would have had several deaths were it not for a method which was discovered accidentally in his clinic. In the asphyxiated it had been his custom to stimulate respiration by successive jerking compression on the left side of the thorax. In one case the patient, a child, appeared to be dead, the cardiac action, the respiration, and the hemorrhage at the site of the operation having ceased; the jerking compression of the thorax was found useless, and the child, apparently dead, was taken into the adjoining room, where one of the assistants continued the same treatment. The assistant, becoming impatient, struck the region of the heart with force, and the pulse was then felt synchronous with the blows, the skin became red, the pupils dilated, and the respiration was re-established. When the blows were suspended the signs of vitality disappeared again, but the treatment being continued the patient recovered finally. In other cases this method was equally successful, and the author thinks that it is worthy of being reported.

Notwithstanding these favorable results, it is our opinion that this treatment should be resorted to with caution. When the cardiac action is suspended, it may be well to excite the heart through the thoracic walls, but we should remember that forcible blows in the vicinity of the epigastric region may produce inhibitory effects on the respiratory and circulatory centers, which might prove irremediable.—*N. Y. Therapeutic Review.*

JULES LEFERT, a well known French chemist, and the author of several works, died in Paris on October 21.

WHAT'S IN A NAME?—A juvenile New York publication, referring to the controversy between Dr. Hammond and Parke, Davis & Co., refers to "a Dr. Ernest Hart" having commented upon it.

Swords and sabertaches! *A Dr. Ernest Hart!* We thought all the world knew Mr. Hart, and knowing him loved him.

WE see that all the furor about appendicitis is subsiding, and none too soon. Surgeons have attempted to classify all the affections about the secum as appendicitis, claiming it was a surgical affection.

Craniectomy in a majority of cases is ineffectual. Removal of parts of the bony framework can have no possible good effect on brain massed or atrophied by previous disease.

THE *Pharmaceutical Era* prints the following: "Judge a druggist by his soda" is a sign displayed in a drug store in a little town not far from here. How I would like to have a prescription for a sick friend put up in that store! Here is a man who is supposed to have served years of practice in the handling and compounding of medicinal agents, who is supposed to have spent years in study, to understand pharamacy, materia medica, botany and chemistry, to know thoroughly the pharmacopœia, to have learned the rudiments at least of Latin, to be perfectly familiar with the nature and action of poisons, and to have successfully passed a severe and critical examination in all these; and yet the result of all this supposed study is the ability to throw together a palatable vanilla syrup and twist out a proper amount of foam from the soda fountain. Shade of Esculapius, is this what the modern drug store has come to! Judge a druggist by his soda! Judge him by his cigars, his whiskey, his toothpicks, his Sunday papers, his laundry business—judge him by anything else than by his drugs."

The modern drug store certainly seems to derive an excellent profit from its soda water business. In this city there are several drug stores with bars at least thirty feet long, and at which an immense number may drink. The worst of it is, in these particular places they dispense patent medicines, nostrums, etc. Whenever a new stimulant comes on the market you may be sure that it is on sale at these "fountains." Ignorant and inexperienced persons are served with drugs of which they know practically nothing.

IT is stated upon reliable authority that Princeton College will shortly inaugurate a school of medicine.

THE *Medical Press and Circular* gives an account of an interesting experiment by M. d'Arsonval, the colleague of the eminent physiologist Brown-Séquard. At the invitation of the former, two members of the Académie des Sciences, MM. Cornu and Marey, entered into a large wooden cylinder around which was rolled copper wire. When these gentlemen were seated inside, M. d'Arsonval sent through the wire a series of very rapid and powerful electric currents. At the end of some minutes the "patients" said they felt no inconvenience, save that they felt the necessity of breathing more deeply; yet according to scientific law they should have found themselves plunged in an electric bath which would have instantly killed them if the operator had not taken the precaution to change continually the direction of the currents. To prove that the laws of science, as known, were not in fault, M. d'Arsonval invited the two gentlemen to take in their hands incandescent lamps, isolated completely from any wire. Hardly were they in the hands of the "subjects" when they lighted up as though they had been really attached to some powerful battery. To prove still further the intensity of electric currents capable of being borne by a man without danger, he gave them as many lamps as their hands could hold, and thus the two *savants* were transformed into six-branched candelabra! The experiment of the disciple of M. Brown-Séquard proves conclusively that man can live at ease in an atmosphere loaded with electricity. The importance of the fact cannot escape notice, as it puts scientists on the trail of that magnetic influence which some persons appear to possess and put to unfair advantage.

THE RECENT ACTION of the Michigan State Board of Health in placing consumption on the list of contagious diseases and requiring that certain safeguards shall be employed to prevent its spread is causing widespread newspaper discussion as to the propriety of similar action in other States.

Not only has the Michigan Board of Health taken this radical step, but the County Medical Society of Philadelphia, has petitioned the Board of Health there to isolate consumptives. The Pan-American Congress, of which Dr. Reed, of Cincinnati, was secretary, also passed a resolution at the recent Washington convention calling on the National Government to take steps in the same direction, even going so far as to ask President Cleveland to give his personal attention to the matter.

Under this pretext the Cincinnati *Post* has inserted a five column article on consumption, wherein they try to give the impression that all cases of tuberculosis, however slight, are to be "torn from their homes and friends and turned over to 'special hospitals' which in reality will be pest houses." After dwelling upon the horrors of such a course, they proceed with arguments pro and con by the "most prominent local practitioners." Then follows an exquisitely ingenious advertisement of the Amick "cure." In reply to a question from the "interviewer," Amick says that his reason for keeping his formula secret is "to prevent the tinkering of inefficient doctors" therewith.

To our mind the whole "article" is a gigantic advertisement of the Amick Chemical Company.

IN a paper read before the Pi Sigma Tau Fraternity of Cooper Medical College, J. Mora Moss made a plea for the application of the metric system to medicine. After giving some examples of the difficulties of the present method, he states "if the time wasted by our 60,000,000 people each day in learning and using the present system could be saved, it would add thousands of men to the productive resources of the country."

A FRENCH statistician has been studying the average heights of men at different periods of the world's history, and has arrived at some remarkable conclusions. He records facts extending over three hundred years. According to him, the first men averaged 16 feet 9 inches. Goliath was but a degenerate offspring. In the beginning of our era the average man stood 9 feet "in his socks." At the time of Charlemagne it had dropped four inches. In 1610 it was 6 feet 6. In 1790 it had dropped to 5 feet 6 inches, and in 1820 it was but 5 feet 5 inches. It it conclusively shown that in 4000 A.D.the height of the average man will be 15 inches, and in a few thousand years more *nil*.

A CASE OF SMALL POX was discovered in Newark, N. J., on October 10. The patient, a woman, had recently been at the Flatbush, L. I., Hospital for three weeks, and had slept with another woman whose case had been diagnosed as chicken pox. Once again!

THE *Lancet* publishes a report of an exceedingly careless administration of chloroform. On Wednesday evening, Sept. 27th, a man while helping to unload sand was knocked down by the cart and had his hip dislocated. An attempt was made to reduce the injury, but this having failed the man was sent on a spring-cart to the Royal Hospital, Belfast, a distance of nine miles from Ballyclare, where the accident occured. The acting house physician and the visiting surgeon having examined the patient, it was decided to give an anæsthetic; in addition the man begged that nothing should be done till an anæsthetic had been administered. Chloroform was then given on a sponge, and in about ten minutes, while the visiting surgeon was attempting to reduce the injury, the patient's face became blue and he rapidly sank, in spite of every effort (ether, artificial respiration, etc.) to rally him. At an inquest held the next day the jury found that the deceased had died while under chloroform for an operation, and attached no blame to anybody. At the post-mortem examination evidence of old-standing heart disease (atheroma) was found.

MR. ERNEST HART, editor of the *British Medical Journal*, in an address to the Section of Public Health of the Academy of Medicine, New York, advanced some rather interesting ideas upon cholera. In England, he said, quarantine was being less and less relied upon, while the Americans are, perhaps, looking upon it as a sure means of keeping out infection and contagious diseases and of warding off epidemics. The speaker said: "You can eat cholera, you can drink cholera, but you can't catch it, even if you run after it. The safest place in a cholera epidemic is a cholera hospital. If I were to put a cholera hospital in New York I would set it down right in Fifth avenue. It would make a panic, stir up the authorities to keep the Croton clean, the drain pipes clear, and the sewage connections perfect. You put your cholera patients away off on islands. This ought not to be." Mr. Hart said that there was no word in the English language more blessed than cholera. In explanation, he stated that the fear of it had saved thousands of lives and brought about better sanitation, better water, cleaner homes and purer air.

THERE is a popular superstition that the sigmoid shaped catheter is a comparatively new instrument, having been invented in the last decade. At the meeting of the New York State Medical Association Dr. Gouley exhibited a sigmoid shaped catheter, a replica of one found in Pompeii. It was covered with verdigris. The head had only one eye. It was quadrilateral in shape.

He also showed a few domestic catheters. He claims that they are better than those of foreign manufacture, having a better finish and polish. He prefers curved catheters to all others. He also exhibited an excellent cheap catheter, costing only ten cents. These are quite as good as more expensive ones when they are to be used but once.

TUBERCULOSIS.—These was some discussion upon this subject at the tenth annual meeting of the New York State Medical Association. Among others, Drs. Leale and Cronin spoke very ably. Dr. Leale gave an instance of a consumptive woman having married a very strong and robust man. For a few years the woman improved, and gained a great deal in health and strength. After a few years this improvement stopped, and she died more than twenty years afterward a physical wreck. The man slept in the same room with her all this time, until shortly before her death he was informed that he had a hopeless case of tuberculosis. In pursuance of medical advice he went to Egypt and lived for a long time upon the Nile. In about ten years he returned home sound and strong in every respect.

Dr. Cronin gave a case in which a young woman afflicted with tuberculosis was married upon her death bed to a great strong farmer. The result of this marriage was that she soon became well enough to leave her parents and reside with her husband. She finally recovered her health entirely and became the mother of a large and robust family.

THERE was a woman arrested last month on the charge of cruelty to animals. She claims to be a member of a new organization, called "Midnight Band of Mercy." She made it her business to go around the streets at night and collect all the stray cats she could approach. She then transported them in a basket to her house, where she sent them to the happy hunting grounds by means of chloroform.

Her reason for this strange procedure is that there are thousands of homeless cats, which, when Winter comes, die a slow death from hunger and exposure. She stated, when arrested, that she intended to make a test case of it and "push it through to the last gasp."

Dr. Danion, in an article published in *L'Electrothérapie*, April, claims to have discovered a new method of curing stricture of the urethra by electricity. He states that, with currents of a low tension, cicatricial tissue is softened and rendered elastic. The treatment is rather long, because of the necessity of having the current free from all caustic action.

The cure, however, is permanent and the patient may pursue his ordinary mode of life. The doctor fails, however, to describe his instrument, and omits all details of his mode of treatment.

In the October number of the *Virginia Medical Monthly*, Dr. John N. Upshur, Professor of Materia Medica at the Medical College of Virginia, combats very strongly the advisability of the use of chloroform in labor. He states that chloroform diminishes the excitability of the muscular system and its capacity for work. If prolonged, it exhausts muscular irritability. It interferes with oxidation of the blood, thus becoming toxic to the fœtus. He holds that its stimulous action on the vaso-motor center is doubtful. He also states that, whenever chloroform is administered, a full dose of ergot should be given as soon as the head is delivered, or the second stage of labor completed. As an additional precaution he advises the hypodermic injection of atropine (gr. $\frac{1}{120}$) or sulph. strychnia (gr. $\frac{1}{60}$.)

The sanitary condition of the city of Hamburg has been very much misrepresented.

During the whole of the present year the health of that city has been excellent, the average mortality being far below that of the principal cities of the world. The cleanliness of the streets is exemplary. They are swept and scraped and washed until they almost shine again. The blind alleys and courts are also well looked after. The markets in the different sections of the city are models of neatness. At the close of business hours each day every scrap of refuse and garbage is at once removed, under the supervision of the sanitary police corps. At ebb tide the water is let into immense basins, when it is filtered through different strata of sand, after the most approved system, and, finally, into the city service pipes. Bacteriological examinations of this water, repeatedly made, have, without exception, testified to the purity, and its regular use throughout the city has given additional proof of it.

Later reports from Hamburg state that there have been several riots occasioned by the efforts of the sanitary police to enforce cleanliness. One policeman and one sanitary officer were killed. The poor and ignorant classes seem to have a horror of being compelled to observe cleanliness and the ordinary sanitary regulations.

A bayonet charge from hastily called troops was needed to bring them to their senses.

SIR JOSEPH LISTER, after twenty years of investigation and experiment, has declared his renewed allegiance to carbolic acid as an antiseptic. Carbolic acid, besides being more efficient than corrosive sublimate as a surgical germicide, is also a better agent for cleansing the skin. Corrosive sublimate cannot penetrate grease at all, while carbolic acid has a powerful affinity for the epidermis, penetrating deeply into its substance and mingling with fatty materials in any proportion.

THE CITIZENS OF BALTIMORE are trying to persuade the politicians to give them a hospital for contagious diseases.

THE London *Lancet* reports the case of a woman who had been fifteen times confined of twins, besides some other single births. Her husband died lately, when his and his widow's lives were noticed in the local newspapers. She lamented her lot, not that she had brought over thirty subjects to Her Majesty, but that thirty of them had not come in triplets, so that she might have been amenable to Royal bounty. She is certainly worthy of this.

DIFFICULT URETHRAL STRICTURE.—In this class of cases Dr. McMunn (*Brit. Med. Jour.*) recommends the following proceeding: If the shaft of a silver catheter (generally of large size) or an endoscopic tube be passed quite down to the stricture, we can by this means widen out the aperture, or, more important still, alter the axis of the tube, and use the filiform instrument which it contains, systematically, until we hit off the opening. This will, at least nearly always, succeed in idiopathic cases.

THE 16TH OF OCTOBER was the centennary of the death of John Hunter, the greatest anatomist and pathologist known to history.

He died from heart disease, in a fit of anger brought on by a discussion with his colleagues at St. George's Hospital, London. During the hundred years that have elapsed since Hunter's death, the world's deep indebtedness to Hunter's incomparable industry and genius for experimental research has been more and more widely acknowledged.

IT BECOMES our sad duty to announce the death of Dr. John C. Morehead, late of Morgantown, Kentucky. He passed away very suddenly, his death being occasioned by heart failure. The news reached us too late to appear in the October issue.

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BOOK REVIEWS.

"Brain Surgery." By M. Allen Starr, M.D., Ph.D., Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, New York; President of the New York Neurological Society, etc. With fifty-nine illustrations. New York: William Wood & Company, 1893

This very interesting volume, of about 300 pages, has made its appearance at an opportune time. Surgery has made such wonderful progress during the past decade that we are now no longer surprised at it knocking upon the skull and demanding admission to the wonderful contents within. Hand in hand, however, with this great advance in the science and art of surgery have gone the labors of the neurologist, for it is by his persistent efforts at the bedside, at the autopsy table and in the field of vivisection that the way has been pointed out to the surgeon, who has thus been enabled to use his skill for the benefit of mankind. Dr. Starr's experience as a teacher and a clinician, and the value of his previous contributions to neurological literature, are sufficient to justify a careful perusal of anything in this department of medicine which may come from his pen. The first chapter, eighteen pages, is devoted to the Diagnosis of Cerebral Disease, and, as he truly points out, the diagnosis of the nature of the disease and the diagnosis of its situation are certainly the essential preliminaries to any operation on the brain. In this chapter, with the aid of good illustrations, localization and cranio-cerebral topography, are discussed, rules and measurements for finding the different points of interest being given. The second chapter, ninety-five pages, the longest and probably the most interesting of the book, is devoted to the discussion of trephining for epilepsy. The author gives histories of 13 of his own cases which have been operated upon, and short summaries of many other cases gathered from different sources. It must be confessed that the results are not brilliant in the ordinary acceptation of the term; indeed, at first sight, they appear almost enough to deter one from seeking relief in this way, but it must be remembered that trephining for epilepsy as now practiced is a new procedure, that the study of epilepsy is only beginning to assume a rational basis, and the reason for these results has been that heretofore it has been impossible to distinguish the operable from the non-operable cases with any degree of satisfaction. That certain cases of epilepsy of the Jacksonian and traumatic varieties can be cured by trephining, no one will have the hardihood to doubt, and, as the skill which enables one to isolate the operable cases from those which will not get well under any treatment whatsoever increases, the results will present a different appearance. We are sorry to see that the author falls into the same error that so many writers upon this subject have fallen into, that of publishing his cases too soon after operation, thus making statistics which may prove wrong, for it is well known that in some cases there is a so-called "habit," whatever that may mean, set up, by reason of which the seizures may persist to a certain extent even though the case ultimately result in a cure, and in others that almost any operation, whether on the brain or the buttocks, will cause a temporary suspension of the seizures. After disposing of the subject of epilepsy the author takes up the subjects of trephining for imbecility, for cerebral hemorrhage, and for abscess of the brain, the latter of which has furnished some of the most brilliant results in cerebral surgery. Following these come tumor of the brain, hydrocephalus, insanity, headache and other conditions, the volume being brought to a close with a short chapter on the technique of trephining. In looking over this, the last chapter, we would advise our readers not to follow one suggestion, most probably an oversight made by the author, viz., that of soaking instruments in a solution of the bichloride of mercury, for it will only result in being obliged to buy new ones for the next operation. While the work bears the stamp of the author's personality clearly upon it, it is to a certain extent a compilation, though none the less valuable for that reason. Occupying conservative ground, the author makes it apparent that he is trying to point out the way which, in the light of past experience, will lead to the best results. His deductions are clear and logical and he has succeeded in giving to the profession a work which will occupy a high place in the literature of this special field. From a mechanical standpoint the book is well gotten up, the paper is good, the illustrations and type are clear.

"Anatomy, Descriptive and Surgical." By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital, London. New American, from the thirteenth enlarged and improved English edition. Edited by T. Pickering Pick, F.R.C.S., Examiner in Anatomy, Royal College of Surgeons of England. In one imperial octavo volume of 1,100 pages, with 635 large engravings. Price with illustrations in colors: Cloth, $7.00; leather, $8.00. Price with illustrations in black: Cloth, $6.00; leather, $7.00. Philadelphia: Lea Brothers & Co., 1893.

Since 1857 Gray's Anatomy has unquestionably been the standard text book on its subject among all English speaking peoples. The demand for thirteen editions has been utilized by subjecting the work to the searching revision of the foremost anatomists of a generation.

If any treatise upon any subject can be brought as near to perfection as this work, we should be happy to see it.

Not only is the subject matter made as plain as possible, but the illustrations are irreproachable as to size, coloring, etc. We regret, however, to see that the publishers have used some old and worn plates. The liberal use of colors lends added prominence to the attachments of muscles, to veins, arteries and nerves.

As heretofore, the revision has been, with the exception named, most thoroughly performed, so that the work is kept always abreast of the times. Especial attention has been paid to the applications of anatomy to surgery, and the work is therefore indispensable to ali who find in the exigencies of practice the need of recalling the details of the dissecting room.

"A Practical Treatise on Materia Medica and Therapeutics, with Special Reference to the Clinical Application of Drugs." By John V. Shoemaker, A.M., M.D., Professor of Materia Medica and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia: Physician to the Medico-Chirurgical Hospital, etc. Second edition. In two volumes. Philadelphia: F. A. Davis Company, 1916 Cherry street.

The first volume of this work is devoted to Pharmacy, General Pharmacology and Therapeutics, and remedial agents not properly classed with drugs. The author discusses electricity in medicine, massage, the rest-cure, diet, hygiene, hypnotism, and climatotherapy in an able manner. The section devoted to electrical application is the feature of the work.

The second is called "An Independent Volume upon Drugs." The latter are arranged alphabetically. The only part of this volume distinguishing it from other works on this subject is the section devoted to new drugs. What there is of it is good. With regard to this volume, we think that Dr. Shoemaker's time and energy might have been spent to better advantage.

"A Dictionary of Medical Science, by Robley Dunglison, M.D., L.L.D., edited by Richard J. Dunglison, A.M., M.D., new (21st) edition, thoroughly revised and greatly enlarged and improved. In one imperial octavo volume of 1,181 pages. Philadelphia: Lea Brothers & Co., 1893.

This edition contains a full explanation of the various subjects and terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Pathology, Surgery, Bacteriology, Ophthalmology, Otology, Laryngology, Dermatology, Gynecology, Obstetrics, Pediatrics, Medical Jurisprudence and Dentistry, etc., etc. For the first time pronunciation has been introduced, being indicated by a simple, clear phonetic spelling. Derivation, an unexcelled aid to remembrance of meanings, is also thorougly given. The full and explanatory definitions, for which "Dunglison" has always been noted, have been expanded to include much valuable and practical information not always easily found elsewhere. Thus, under Diseases are given their symptoms and treatment; under Drugs, their properties and doses; under Poisoning, the symptoms, antidotes and treatment.

Forty-four thousand new words and phrases have been added to place the work in conformity with the most advanced terminology of the time.

The profession will value this book as an old friend who has never betrayed their confidence, nor failed to afford them valuable information during a period of sixty years. Its re-appearance with all the trappings of youth and prosperity is a pleasure to all, and a fresh reminder of the "survival of the fittest."

"A Manual of Medical Treatment or Clinical Therapeutics." By I. Burney Yeo, M.D., F.R.C.P., Professor of Therapeutics in King's College, London. In two 12mo volumes, containing 1,275 pages, with illustrations. Complete work, cloth, $5.50. Philadelphia: Lea Brothers & Co., 1893.

In this work disease is studied from the standpoint of treatment, the rational indications for therapeusis being reached through an explanation of the causation and phenomena of disease and of the properties and mode of action of the agencies available for alleviation or cure. The work is rich in selections of formulæ used by well-known physicians.

"Minor Surgery and Bandaging." By Henry R. Wharton, M.D., Demonstrator of Surgery in the University of Pennsylvania. In one 12mo volume of 592 pages, with 416 engravings. Cloth, $3.00. Philadelphia: Lea Brothers & Co., 1893.

In response to the demand for a second edition the author has revised his work to make it represent in every way the advances of the two years which have elapsed since its first appearance. The exceptionally rich and beautiful series of illustrations, in connection with a singularly clear text, afford the student and practitioner all needed instruction in the many procedures grouped under the title. The author has construed his title very generously, and has placed within the covers far more information than is usually accredited to minor surgery.

The aseptic and antiseptic methods of wound treatment have been thoroughly revised, and a considerable amount of new matter, with a number of new illustrations, have been added. The work also contains short articles upon tracheotomy, intubation of the larynx, ligation of the arteries, and amputations, and, although these procedures are scarcely to be included with those of minor surgery, their description increases somewhat the value of the work to medical students, for whose use it has been prepared.

"Outlines of Practical Hygiene. Adapted to American Conditions." By C. Gilman Currier, M.D. 8vo, pp. 408. Illustrated. New York: E. B. Treat, 1893. Price, $2.75.

Many books have been published purporting to teach hygiene, but to our mind none of them have come so near as this work to teaching practical hygiene.

Accepted truths alone are embodied in the teachings of this book. Very positive opinions are rarely advanced upon any subject unless they are those of the majority of leading thinkers.

The purpose throughout this book has been to make important truths as clear as possible, and for this purpose simple expressions and the most intelligent terms have been employed.

"Essentials of Minor Surgery; Bandaging, and Venereal Diseases." By Edward Martin, A.M., M.D., Clinical Professor of Genito-Urinary Diseases; Instructor in Operative Surgery, and Lecturer on Minor Surgery, University of Pennsylvania; Surgeon to the Howard Hospital, etc., etc. Philadelphia; W. B. Saunders, 925 Walnut St., 1893. Cloth $1.

This is a second edition of this work, revised and enlarged.

The modest aim of this volume is well expressed in the title-page. It is designed to aid the student in acquiring the principles primarily essential to a thorough knowledge of the subjects treated. Many omissions have necessarily been made, omissions which each must supply by reading and study after the hurry and rush of the medical school has given place to the quiet of beginning practice.

"Essentials of Bacteriology. A Concise and Systematic Introduction to the Study of Micro-Organisms." By M. V. Ball, M.D., Physician to the Eastern State Penitentiary at Philadelphia. Philadelphia: W. B. Saunders, 1893.

This is also a second edition of the author's original work, published in 1891.

The efforts of bacteriologists, since Koch's tubercular announcement, have been directed to the elaboration of therapeutic agents from the chemical products of bacteria. Physiological chemistry can accomplish more here than bacteriology. The separation from the blood of antitoxines and their application to the cure of disease will probably revolutionize our present method of treatment and add some peculiar agents to our materia medica.

The question of immunity is still unanswered, though the phagocytic theory of Metshnikoff and the alexines of Buchnia are bringing us to the solution. Upon these lines the greatest efforts are at present being made.

The way in which the first edition was received assures us of the success of this present work.

"Therapeutics of Cholera." By P. C. Majumdár, M.D. Philadelphia, Boericke & Tafel, 1893.

By some mistake this little stranger from the homœopathic world has come to our table. It is written by a Homœopath, and published by Homœopathic publishers.

We will, however say a few words with regard thereto.

The author certainly has mastered his subject, and reduced the danger of patients who go to homœopaths, in so much as the symptoms, hygiene, etc., are concerned. He says of hydrocyanic acid: "It is our sheet anchor in case of cholera collapse; in fact, it often brings a corpse to life." In another portion he says: "How powerless is all the allopathic treatment to grapple with the disease! On the other hand, the Homœopathic system is eminently successful in this disease."

"The Pernicious Influence of Albinism Upon the Eye," "The Meaning and Method of Life." "The Duty of the Community to Medical Science." "The Medical Press." "The Spelling of Some Medical Words," by George M. Gould, A.M., M.D., of Philadelphia.

"The 'Era' Key to the U. S. P." Published by D. O. Haynes & Co., Detroit, 1893.

"Address on Hygiene." Delivered by Prof. Samuel G. Dixon at the meeting of the Pennsylvania State Medical Society.

"A Contribution to the Surgery of the Gall Bladder," by Maurice H. Richardson, M.D. Reprint from *Annals of Surgery*, October.

"Four Successful Nephrectomies," by Maurice H. Richardson, M.D. Reprint from the *Boston Medical and Surgical Journal*, April 13, 1893.

"A Consideration of the Paræsthetic Neurosis." "An Analysis of One Hundred and Twenty-five Cases of Chorea." By Joseph Collins, M.D., Instructor of Nervous Diseases, New York Post-graduate Medical School, etc., etc.

"Perityphlitis—Report of Three Cases of Perforating 'Cæcitis' and 'Pericæcitis.'" By F. C. Schaefer, M.D., Professor of Surgery Northwestern University Woman's Medical School, etc., etc.

"Sarcoma of the Pia and Brain, Simulating Brain Tumor; Mono-Spasm and Mono-Paresis; Operation." "Some Points in the Diagnosis and Treatment of Intra-Cerebral Hemorrhage and in the Treatment of Chorea." By J. T. Eskridge, M.D., Denver, Colo.

EDITORIALS.

CHEMICAL THERAPY.—In this day of positive medication, *i.e.*, medication whose effect upon the human organism may be ascertained by mathematical instruments, the thermometer, watch, dynamometer, sphygmograph, hæmometer, etc., it would ill become the progressive physician to belittle any effort in the direction of scientific therapeusis. A recent editorial disquisition upon the subject of chemical therapeusis impels us to observe that, inasmuch as therapeutics can never be anything but empirical, it is worse to burden the physician with highly wrought chemical knowledge which can but lead him astray. We agree with Prof. Semmola, whose position as the director of the Therapeutical Clinic of the University of Naples entitles him to speak upon this subject:

"The only road which remains open to clinical medicine, in order to prove of use to experimental therapeutics lies in the suppression of all hypotheses, and in the constant attention paid to the rigorous determination of clinical types and of the infinite gradations and differences which may present themselves in reference to various individuals. This rigorous determination is obtained by placing the nosographic determination in its proper relation to etiology, and controlling them to a certain extent by chemistry and pathological histology. The same symptom may possess infinite variations and modalities, according to different individuals; and that which the reagents of the laboratories cannot demonstrate may be clearly shown by such studies; for the symptoms of disease may be compared to a sphere turning upon a large quadrant and revealing, multiplied and intelligible, the microscopical reactions which take place in the depth of the tissues, which no reagent can ever reveal to us, and which can be appreciated only by the living cell."

It is by clinical observation and by a rational explanation of clinical phenomena alone that treatment of diseases can so become successful. What Semmola says of the "microscopical reactions which take in the depth of the tissues" is equally true of the "chemical reactions" of the average medicinal agent.

In the same journal (*American Medico-Surgical Bulletin*, October, 1893) to which the above view of Semmola was contributed we read the following editorial remark: "When these chemical laws are fully understood, it is perfectly plain that the slightest variation in either the atomic composition or the molecular structure of the compound may produce widely different results. As the observer then glances over the list of compounds so closely "resembling" each other in their chemical formulæ, he at once appreciates the difference, either from the atomic or the molecular formula—as the case may be—and understands the diverse results that can be obtained from those different substances, and no longer wonders why it is so.

The study of *isomers* is one of the most important and fascinating departments of chemistry in connection with the animal economy; for by these many of the wonderful phenomena of animal industry can be satisfactorily explained.

Speaking of glycocine and its isomers, it is to be hoped that the medical man would know that "$C_2H_5NO_2$" does not constitute the *whole* of its chemistry. He *should* also know that glycocine is an amidacetic or glycollamic acid, and that it has isomers—that one of its isomers, ethyl nitrate, belongs to the ethylic-ether class; and that the other, nitro-ethane, belongs to the nitro-paraffin class. They certainly should not presume to get the same effects from a nitro-paraffin that would be obtained by using an ethylic compound or the glycollamic, acid glycocine. In fact, a knowledge of the difference in their structures would prevent the making of such an absurd mistake as to send for "$C_2H_5NO_2$" without at the same time specifying from which class it was meant to be taken."

The writer being an "old practitioner," and deeming himself too musty in chemistry to entertain an opinion on so intricate a theme, and being withal inclined to progressive therapeutics, decided to ask an intelligent physician, graduated four months ago from a University whose high standard, especially in chemistry, is admitted, to explain the therapeutic significance of the study of isomers. Both the old and the young came to the conclusion that we knew not what, according to this writer, we *should* know, viz., $C_2H_5NO_2$ does not constitute the whole of the chemistry of glycocine, nor that the latter is an amidasetic or glycollamic acid; nor that it has isomers, etc.; and we both acknowledged that we would surely have made the absurd mistake of sending for $C_2H_5NO_2$ without the specification required by the writer, if we had "sent" for it at all. Moreover we discovered that an ignorance of glycocine was shared by "Eulenberg's Real Encyclopedia, the original work and the late addendum, and by Gould's Dictionary, and by the erudite contributors of that marvelous compendium of medical progress, the Annual of the Universal Medical Sciences, which appear to ransack the literature of the world.

We make bold, therefore, to affirm an ignorance and pray for enlightenment on a subject which seems to be so plain to our contemporary. The latter has done yeoman work in the line of dietetics and other branches of medicine. We have obtained much light from it on obscure points in the chemistry of food and cognate matter. But our brilliant contemporary fairly takes our breath away by the disquisition on isomers which he insists we should know all about.

Surely the subject of therapeutics is handicapped enough; the student must needs wade through a mass of material, which he will throw overboard as he advances in practical experience. Why burden him still more? Would it not be the part of wisdom to *draw the lines more closely*, and study such remedies whose effects are positively more thorough from a chemical, physiological and empirical standpoint?

Chemical therapeutics is doomed. The human body is not a test tube, but a living vital organism which resents the chemist's attempt to make it the field for his incursions. As practical physicians we must join forces with the long suffering human organism. Far be it from us to abandon our well tried and justly valued remedies, or to become unmindful of our debt of gratitude to the brilliant chemists of the day who have given us the most potent remedial agents of all time. But do not muddle us, we pray you, friend chemists; give the plodding doctor a breathing spell, and don't scold him because he does not know, as our able contemporary thinks he *should*, that glycocine is an amidacetic or glycollamic acid, which has isomers, one of which is ethyl nitrate, belonging to the ether class, and the other nitro-ethane, belonging to the nitro-paraffin class, etc The simplification of therapeutics will contribute to its perfection, and render it as nearly scientific as the uncertain premises of its problems admit. Our warrant for these remarks is to be sought in this need.

THE recent meeting of the New York State Medical Association was very successful in spite of the attractions at Chicago, which must have influenced the attendance at such meeting at the time of holding it, Oct. 9–12.

Some of the papers read will appear in the JOURNAL.

The most notable feature of the scientific work was the discussion on the treatment of appendicitis, in which the general trend was toward conservatism, but not, however, toward a do-nothing policy. The necessity for interference in certain cases was well defined, but the fact that a laparotomy, with every precaution, implies some danger, was set forth as an ample reason for declining to operate in every case in order to *prevent* a general septic peritonitis. The pendulum of opinion seems to have inclined to the conclusion that we should operate when there is evidence of suppuration, where there is diffuse peritonitis, or when the recurrence or persistence of the symptoms would indicate that the ordinary natural processes were inadequate to a restoration of health, or at least constituted a notably threatening condition.

The social element of the session was prominent, as this was the first decennial meeting. The banquet at the Hotel Brunswick was an elaborate affair, and it will long be remembered by those who participated. The toasts were happily conceived, and the responses well delivered. The presence of Mr. Ernest Hart lent a special interest in view of his recognized ability and the active part he is now taking in hygiene and matters of public health.

The trip to the islands at the close of the session was favored by a perfect Autumn day, and was a source of pleasure and profit to those who could attend. It takes such a journey for one to realize the magnitude and peculiar features of the work under the direction of the Commissioners of Charities and Correction.

IN the last three issues of the JOURNAL we have printed an advertisement of the Amick Chemical Company, of an alleged cure for consumption.

Not until within the last four weeks, after the October number had been mailed, have we become aware of the true inwardness of this "only successful treatment of pulmonary diseases."

This advertisement was not solicited by the JOURNAL, but was received by the business manager from an agency which has since gone into liquidation.

In accordance with the ancient policy of this JOURNAL, as practiced since 1866, we strike the thing from our pages.

We hereby beg to apologize to our subscribers, in the most complete manner, for this unconscious fraud upon them.

To our advertisers our apologies are also due for our having introduced a wolf in sheep's clothing into their midst.

NATURAL AND ARTIFICIAL DRYNESS OF CHAMPAGNE.

Natural dryness and the smallest percentage of alcohol constitute the purest and most wholesome champagne, as compared with artificial and spirituous dryness, which admits of a higher percentage of sugar in the wine, while giving a dryer but false taste, as is the case with several of the so-called "brut" wines. By chemical analysis of Prof. R. Ogden Doremus, G. H. Mumm & Co.'s Extra Dry contains, in a marked degree, less alcohol than other prominent brands, and he recommends it, not only for its purity, but as the most wholesome champagne.

Bonfort's Circular, the authorized organ of the wine trade, of January 10, 1893, says: "Custom House statistics for 1892 show G. H. Mumm & Co.'s Extra Dry far ahead of all its competitors, its importations aggregating 75,880 cases, being more than one-fifth of all combined, and over 9,000 cases more than any other brand. While words tell, statistics prove, and the best evidence for unexcelled quality, purity, natural dryness and wholesomeness that can be produced, is given by the success of this famous wine."

G. H. Mumm & Co.'s Extra Dry of the excellent vintage of 1889 is attracting great attention for its natural dryness, purity and quality.

GAILLARD'S MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

ARTICLE I.

CURE OF CONSUMPTION AND EMPYEMA WITHOUT A RESORT TO THORACIC SURGERY.[1]

By CHARLES A. LEALE, M.D., of New York.

Within the past fortnight, I invited two of the members of this association to an interesting autopsy, demonstrating the advantages of the conservative treatment of far advanced pulmonary and pleural diseases, where a resort to thoracic surgery might have given the physician opportunities for glory and compensation, but could not have resulted in so long continued life. It was as follows :

One of the most prosperous merchants in a rapidly growing and wealthy western city, early in his life, while in perfect health married a lady who was known to be from consumptive ancestors and then had consumption, to whom marriage had been recommended as a means toward cure. She never had any children. Her wealth gave her many comforts and excellent sanitary surroundings. Her married life was prolonged twenty-six years. After her marriage she at first improved in health and weight, but in a few years she was again an acknowledged invalid, and her disease slowly but steadily advanced until her death. The prolongation of her existence was believed by her friends to have been due to her intercourse with her healthful consort. Her husband's family I traced for five preceding generations without discovering any hereditary tendency toward tuberculous diseases. About ten years after his marriage, and nightly sleeping in the same bed with his wife, he began to cough, but his inherent antagonism to lung disease, and his magnificently healthful and capacious thorax and enormous lungs, resisted the influence of disease for years, but, long before his wife died, tuberculosis was steadily advancing in him, so that, after a quarter of a century of direct contact, he was then pronounced by his physicians to be in the same condition as his feeble wife. At the end of twenty-six years of married life, with continued cough and profuse expectoration, the wife had become an emaciated skeleton and died from the effects of general tuberculosis.

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[1] Read before the late meeting of the New York State Medical Association.

The husband's right thorax was then filled with pus and consolidated lung tissue. He was told that he could never recover and that it was his duty to retire from business and seek better opportunities to make his life more endurable. He went to Egypt, lived an entire season near the river Nile, and, before many weeks had passed, found that he was gaining in weight and strength, had so continued for twenty-five years, and only last Summer thumped his thorax while on my physical examination chair, stating how the doctors had been deceived by thinking that he had any disease of his lungs.

He gave his physicians no credit for their correct diagnosis nor for their influence in prolonging his life. He stated that they were all wrong, that his consumption was a myth, but his necropsy proved that they were right in every respect except their unfavorable prognosis of a short life, as we found in his lungs all the signs of a cured consumption. There were extensive consolidations of the upper lobe of his right lung, in which were found cheesy and calcarious masses as large as chestnuts, while his pleura was a quarter of an inch in thickness and resembled tough leather. He had a sufficiency of useful lung tissue to last him for twenty years. Nature had in her wise way shut off the diseased upper lobe of the right lung and had covered his thickened and hardened pleura with a pseudo serous membrane. It was plainly seen that no operation could have successfully removed all of his diseased pulmonary tissue, and also that if the pus had been removed from the thorax it would have prevented its desiccation over the dependent portions of the pleura and thereby prevented such a thick inelastic covering to the diaphragm which during the whole subsequent course of his life occasionally caused lancinating pains due to its adhesion to the liver.

The surgeon, if he had opened that thorax during life, could easily have demonstrated to the patient and his friends something wonderful to them, when he had removed three or four pieces of solid chalk, the size of chestnuts, and masses of offensive cheesy decompositions, or if attempts had been made to cut away portions of that pathologically thickened and hardened pleural wall which for years had been so safely guarded. His medical treatment had resulted in giving him an excellent stomach, good appetite and powerful digestion. By physical exercise he had attained a compensating enlargement of his heart, and his liver had been left in an almost absolutely normal condition. He thereby, with his excellent assimilation of nutritious food, powerful blood and active glandular secretions, readily overcame all the effects of the other pathological lesions, with the exception of atheromatous changes of the middle coats of the cerebral arteries. Three years before his death I wrote an excuse to the justice to have his name permanently stricken from the roll of jurors, and then wrote that he was in danger of sudden death being induced by either acute indigestion, over fatigue or undue excitement. His last meal was over two quarts of milk at nearly 32° Fahr., which nature resisted by a violent effort to vomit, causing such pressure as to rupture one of his atheromatous cerebral arteries, immediately followed by paralysis and coma, with death on the third day.

ARTICLE II.

THE MALE CATHETER, WITH SOME OBSERVATIONS UPON THE PROPER MODE OF INTRODUCTION INTO THE BLADDER.[1]

By Douglas Ayres, M.D., of Montgomery County.

Celsus, who lived before, and early in, the Chistian era, probably during the reigns of Augustus and Tiberius, was the first to describe in his Cyclopedia De Artiber the catheter and the manner of its use, and the directions there given are still largely the method of procedure of the present. The catheters of his time were composed of copper only, but as they were so soon and so readily covered with verdigris they were soon abandoned as early as the time of the Arabian practitioners, who made use of silver, which is still the standard material. Attempts were made later to invent those that were flexible. Van Helmont suggested those made of horn, which were found not to be sufficiently flexible, and quickly coated with deposits from the urine. Fabricius of Aquapendente, an Italian anatomist and surgeon, who died in Padua in 1619, suggested and made use of leather, but they were soon softened by the urine and mucus, when they contracted and became useless. Others were tried, formed of spiral springs of silver covered by the skins of some special kind of animals, but they were soon rendered useless by putrefactive changes and dangerous on account of separation of the beak while in the bladder. Inflexible catheters were mostly curved. Desault recommended and

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[1] Read before the late meeting of the New York State Medical Association.

made use of those slightly curved, one-third of their length, which began from the straight part, and continued to the extreme end of the beak, the curvature being regular, and forming the segment of a circle of six French inches in diameter. Amussat recommended the use of straight ones, which were passed as far as the pubes, while the penis was drawn upward, then brought down between the thighs to lessen the urethral curve, and so passed into the bladder. It was said that its advantages were in the fact that it could be rotated and thereby made to pass the more easily any obstacle. Such is a somewhat imperfect history of the catheter up to the beginning of the present century, when those made of elastic gum over woven silk tubes were suggested, the honor of which invention has been claimed both by the Germans and the French, for Theden or Pickel of Wurzburg of the former, and for Bernard, of Paris, of the latter. They did away with the inconveniences and danger of all the former inventions, were sufficiently elastic to follow the changeable course of the urethra, were not softened by the urine, and not liable to be soon encrusted by urinary deposits. They were the first offerings to a more scientific, more perfect class of flexible catheters. We have at present silver catheters of various curves and various openings at the beak—tunneled, vertebrated and the so-styled vermicular. In the gum elastic we have the prostatic and olivary, the elbowed and double elbowed of Mercier, and lastly the more recent vulcanized India rubber catheter with velvet eyes in their various forms. These are of German, French, English and American manufacture. The latter, I have recently learned from an interesting article by Dr. Gouley, possess qualities as to tensile strength, resistance to the action of urine, and general wear that are superior to any of the others.

In presenting the subject of catheterization in the male I do not expect to lay before you any new facts, or to depart in any way from the old established landmarks of operative procedure, but simply to review with you for a brief time the technique of an operation which so experienced a surgeon as the late Samuel D. Gross declared "that, although apparently very simple, is one of the nicest and most delicate processes in surgery. It requires skill of the highest order, as well as the most intimate knowledge of the anatomy of the urinary organs. My assertion is that few men perform the operation well." This from the pen of one of so large a clinical experience is an index of the importance of a close study of the operation by those less fortunately favored. We will consider for a few moments the anatomy of the parts through which we may be called upon to pass the catheter, then the best means of passing it, and the kind of instruments I have found most useful, with a few illustrative cases in point. The urethra begins at the termination of the neck of the bladder and ends at the meatus urinarius. In the normal state it is about nine inches in length, and when the penis is flaccid it constitutes a curve the concavity of which is downward, but in the erect state it forms a curve the concavity of which is upward. It is divided into three portions: the prostatic, membranous, and spongy or penile portion. The prostatic portion is the widest and most dilatable, and passes through the prostrate gland from base to apex; is about an inch and a quarter in length; wider in the middle than at either extremity, and narrower where it joins the membranous portion. The membranous portion extends from the apex of the prostate to the bulb of the corpus spongiosum; it is a half to three-quarters of an inch in length and is about one inch below the surface of the symphysis pubis, and is the narrowest portion of the canal excepting the orifice. The spongy portion is about seven inches in length, and extends from the termination of the membranous portion to the meatus; it is about one-quarter of an inch in diameter, and quite uniform in size. Such is the tract through which the catheter must pass. A tract lined with delicate membrane, which requires the utmost delicacy of manipulation to guard it from injury; a tract which sometimes may be traversed in its normal state without great difficulty, but at times from abnormal conditions presents obstacles that are with great difficulty surmounted by the most skilful manipulators, and I believe that the very familiar anatomical description just given should always be kept in mind during the introduction of the catheter, as we are thereby enabled to know the precise position of the instrument, and to locate definitely (if there be obstruction) its seat and extent.

We now suppose we have a silver catheter (which I prefer in the great majority of cases) of the proper curve and size. The curve should correspond to the majority of adult urethræ, which may be styled a fixed curve and is that of a circle three and one-quarter inches in diameter and is represented by an arc of such a circle, subtended by a chord two and three-quarter inches in length.

As to size I prefer a number nine or ten, American scale, as they correspond most nearly in size to the diameter of the average urethra and consequently are less liable to be caught in any fold. Undoubtedly the best position for catheterization is the recumbent, the thighs well separated, and the legs drawn up, shoulders somewhat elevated. We now (standing upon the left side of the patient) hold the penis with the thumb and forefinger of the left hand, putting it gently on the stretch, exercising care to keep it quite straight to avoid any twist which might prove an obstacle to the passage of the instrument, then engage the beak in the meatus, holding the catheter parallel to the median line of the abdomen and close to the surface. If the patient has a protuberant belly the shaft at this time should be parallel to the line of the groin, and kept low until the point is about to enter the membranous urethra, to avoid engaging it in the upper wall of the triangular ligaments. We now press the instrument downward very lightly, and gradually lower the handle between the thighs of the patient, the slightest pressure at this time being sufficient to effect it. We next carry it forward with a slight rocking motion, guiding its course by pressing with the fingers under the scrotum against the convexity of the catheter, which turns it up as the handle is lowered. This is the most difficult stage of the operation, and in some conditions frequently requires the most delicate touch and perfect knowledge of the exact position of the instrument in order to be successful in its introduction. Sometimes at this point the beak presses before it the urethral walls, completely occluding the opening, and even though it is carefully withdrawn and manipulated very delicately and intelligently the same conditions may occur again. The main point in these cases, however, is the full realization of the condition, which will be overcome by careful and repeated trials. The fingers of the left hand here play an important part in its guidance. Sometimes when the beak is caught in the fold of the upper wall great assistance may be rendered by gentle manipulation and by pressing firmly down the soft parts of the pubes, thereby relaxing the suspensary ligament of the penis.

I saw a few months ago a case I judged to be of this kind in consultation. The patient, a man forty-eight years of age, who had been an invalid for some weeks from muscular rheumatism and catarrh of the bladder, had been suffering from retention of urine for nearly twenty hours. His physician, a young man of three or four years of experience in the profession, told me that he had made a number of attempts to pass the catheter but met with some obstruction in the deeper part of the canal that he could not overcome. I found the patient very timid and the parts quite tender, but I soon succeeded in quieting his fears as to the result. The doctor had been using a small sized instrument, number seven I think, and informed me that he did not think a larger one could be made to enter, as he believed the deeper parts of the canal were very much contracted. I selected from the instruments I had brought with me one of good size (a number nine), had the patient's hips elevated sufficiently to furnish room to manipulate the instrument, limbs well drawn up, and then with the catheter well warmed and oiled I gently began its introduction. It passed very readily through the first portion, but as it entered the second and began to traverse the curve it very suddenly stopped. I gently drew it back and tried again, with the same result; the handle could not be readily depressed, but by firm downward pressure over the soft parts of the pubes it moved forward; then with the fingers of the left hand gently manipulating it through the perineum with a slight rocking motion, depressing at the same time the handle of the instrument, it glided slowly into the bladder. It was necessary to catheterize him for a number of days, the doctor delegating the operation to me, as he declared after subsequent trials that he could not pass the obstruction.

In the last portion of the urethra, enlarged prostate frequently renders it difficult to pass the catheter. I saw a few years ago an interesting case of this character. Mr. D. M., aged 78, had been suffering from retention of urine for thirty-six hours. His attending physician had called a consultant after his first unsuccessful attempt to relieve him, and they were unsuccessful in their efforts. I saw him with them some hours later and found him with his bladder greatly distended. I made a careful examination and found the prostate very much enlarged. We placed the patient in position, elevating the hips, etc. I then warmed and oiled a No. 9 silver catheter and began its introduction. It passed fairly easily through the first and second portions, but when the prostatic was reached there was a temporary blockade. I then oiled the finger and carried it into the rectum, and by gentle manipulation upon the handle with the right hand, the finger in the rectum pressing the catheter point gently against the upper wall, the obstruction was passed, and I had the satisfaction of relieving the bladder of fully two quarts of urine. In a similar case a few weeks ago I made use of an elbowed gum catheter with an equally satisfactory result. A few weeks since, a call was left at my house to come to the office of a neighboring physician as soon as I could after reaching home. I did so, and found an old gentleman there who had ridden a number of miles to be relieved of the contents of an over-distended bladder. The doctor's salutation was, "never so glad in my life to see you"; said he had been trying for nearly two hours to relieve his patient, each effort followed by a very free hemorrhage. I made use of a good sized silver catheter, introduced it carefully, met with no obstruction until the deeper parts were reached, when it seemed to be firmly held. By carefully withdrawing after reaching the obstruction, and assisting with the left hand on the perineum, in this case depressing the handle rather more than usual, it glided into the bladder, having evidently been held by the posterior walls of the canal pushed before the beak.

I have found many times rents of greater or less extent in the urethral walls, from undue force having been made use of in the excitement of being foiled in the attempt to reach the bladder, and sometimes I fear from the lack of that nicety of touch which practice only can perfect us in, and which should indicate to us the exact amount of force made use of. I would not have it understood that I advocate the use of but one particular kind of catheter, but think the surgeon should be provided with a careful selection of elastic gum catheters, in their various forms, and with the soft vulcanized Indian rubber, as well as the metallic, so that he may take advantage of any form of obstruction that may present itself, his judgment guiding him as to the particular form required after careful exploration. I would take this position, however, with regard to the use of the silver catheter: It has always been my main reliance—the instrument *par excellence* in difficult cases. I always feel certain with regard to its position in the urethra, as to its depth, and the relation of its beak to the surrounding parts. I can guide it more accurately and more intelligently. I have many times been foiled in attempting to pass the gum elastic and vulcanized rubber instruments by the former twisting, and the latter doubling upon itself, so that all knowledge of their exact position was lost.

In prostatic obstruction, with a tortuous canal, the gum catheter with its pliable extremity and olivary point will frequently thread its way past the obstruction, so when there is hypertrophy or interposing bars the vulcanized India rubber may be made to pass in some cases easily, when the twisting motion we are enabled to give it helps to propel it forward. There are a few points which I wish to emphasize in closing my paper, points which, if sufficient attention be given them, furnish the key to success.

1st. A careful study of the anatomy of the parts and the various diseased conditions which may arise to produce obstruction.

2d. Placing the patient in the most favorable position for the operation.

3d. Careful exploration, and the selection of a proper instrument for the case in hand.

4th. The greatest care as to the use of undue force.

ARTICLE III.

THE NECESSITY OF PERFECT VISION IN THE EDUCATION OF THE YOUNG.[1]

By FRANK VAN FLEET, M.D., Lecturer on Diseases of the Eye, New York Post Graduate Medical School, Assistant Surgeon Manhattan Eye and Ear Hospital, Ophthalmic Surgeon Randall's Island Schools, and Infants' Hospital.

MR. PRESIDENT AND GENTLEMEN: In days when mighty discussions take place on fine points in medicine, we are apt to entirely lose sight of everyday occurrences, which, because of their frequency, are too often relegated to ruts, and treated in an entirely perfunctory manner, if indeed they are not carelessly turned aside as of too trivial importance to demand any attention whatsoever. While these conditions occur in every conceivable form and in every department of medicine, I refer more especially to those belonging to the abnormal or faulty refractive status of the eye. Men agree that asthenopia, due to imperfect or weak eyes, belongs entirely to the genus homo, and is never found in animals lower in the scale of being, and indeed only in civilized man; and that the trouble increases with the civilization. Savage races are exempt. In fact, one authority going so far as to say that myopia or near sightedness is an evidence of development, leading one to the inference that a myopic eye is a more developed form than any other.

Much has been said in the last few years on the subject of muscular equilibrium, some claiming all sorts of possible neuroses as resulting from eye strain, and the surgeon's knife has been brought into play for the cure of epilepsy, chorea, insanity, and what not.

Those who have followed the subject carefully know the stand taken by the eminent men of the day, and are not surprised that the tenotomy and anti-tenotomy parties are both extensive and growing, and composed of men of large experience, who are earnest, painstaking and honest investigators. The dividers of ocular muscles have collected cases, and devised instruments of precision. The refractionists have done the same, and the battle wages and will be fought to a finish. As usually happens, in the end the truth will prevail. Nor will the glory belong to the victors alone. The vanquished will reap their reward in that they kept the other side at work, and so furnished their quota to the final victory.

It is not my purpose now to argue the right or wrong of the question, as this subject belongs to the specialist alone, but to address myself to the general practitioner, and to point out to *him*, in my feeble way, how he can do justice to his clientèle, and confer a lasting benefit on the human race.

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[1] Read before the New York County Medical Association October 16, 1893.

While many men practice medicine simply because it offers them a means of livelihood, we ought not to lose sight of the fact that we are not doctors for revenue only, but that it is our function and our duty to look not only for our clients' dollars, but for their present and future temporal welfare.

All refractive troubles of the eye do not cause neurotic reflexes in all people. Much depends on individual idiosyncracies. People of phlegmatic temperaments are very differently affected than are people of what is called nervous temperaments. A patient of highly nervous organization may have an epileptic seizure if his ocular muscular equilibrium is maintained under great tension, or an excitable female may have an attack of hysteria from the same cause. So likewise may a child develop chorea. But the child who is naturally robust and strong, if compelled continually to perform arduous duties of a purely menial nature far beyond his physical abilities, will finally rebel openly, or quietly shirk. So the same child put to mental task beyond the power of his eyes to accomplish will follow the same course and shirk.

A friend once speaking of the study of languages, said the difficulties vanished as soon as he could bring himself to think in the language studied. But when he thought in one language and tried to talk in another, there was sure to be a lack of harmony. If as we think we talk, so as we see we think. If the child has an eye so astigmatically arranged that it is impossible to see a straight line as it is, but always sees it crooked, it will be impossible for that child to have any very definite idea of what a straight line is. And, if even seeing it crooked requires a violent muscular effort which, unaided, can only be maintained for a certain limited time, it will only be a question of a little while when he will give up that effort. Now, this child may suffer pain as the result of muscular strain no matter how strong he may be, and the family physician will be consulted. He, as is too often the case, prescribes medicine. As a medical friend remarked recently, a solution of nonsense in this particular case. But the physician usually will recognize something here that medicine will not cure, and refers the patient to an oculist. Then the trouble may be corrected and a new era opens for this lad. If he is not so fortunate what is the result? The boy, from sheer necessity, is forced to neglect his studies at a time when his mental being is developing, and he grows up to manhood uneducated. When the time comes for this youth to pick out his walk in life he is put at a trade or some other business. But no matter how willing, no matter what good material there may be in his general make up, no matter how persistent in his efforts to learn, he becomes at best but an inefficient workman. Or, forced to give up his perhaps cherished hopes, he finally drifts into some menial position in life, to the disappointment of himself and friends alike.

To such a boy this termination is even fortunate. He may degenerate into a vicious, besotten wretch, not only a disappointment to himself and family, but a curse to mankind in general. An evidence of good material gone to waste.

This may *seem* an exaggerated example, but I do not think it is. I am firmly convinced that many cases occur, such as I have depicted, in which the result might have been different. I am familiar with the quotation, "Of all sad words of tongue or pen, the saddest of all are, 'it might have been.'"

Let me present a few cases illustrative of what I have said, drawn at random from my case book, such as we meet with daily in practice, both private and hospital.

Case I.—J. A., æt. 16 years, complains of inability to prepare his lessons, and wants to leave school. Does not advance as rapidly as his fellow students, and is becoming discouraged. His parents desire to give him the best education their means will allow, and cannot see why James will not take advantage of the opportunities offered him. After threatening, coaxing, and using all methods known to them to bring him to terms, finally, acting on the suggestion of a friend, medical advice is sought. Vision is found to be very defective, being only 2-7ths of the normal. A very strong convex sphero-cylindrical lens improving it up to ½ the normal. We find very many cases like this where glasses improve but do not make vision perfect. And why? The sensitive retina has not been educated to perceive fine impressions. This patient's countenance is dull. You can see he does not have a quick appreciation of your conversation. He has never cultivated the habit of discriminating. He accepts what is said as a matter of course. We may be able in such a case by properly correcting the refractive error to rearrange his mental caliber. If this were done earlier there would be but little doubt of the result. But the time when the earliest impressions are formed is the time when this ought to be done. This patient has been allowing others to think for him, and to change this a revolution must take place in his whole being. Perhaps when he see things as others see them such a change may occur. But he starts at the age of sixteen where other boys are at ten or twelve. Natural ability may come to his aid, but he has been handicapped, and impressions formed at an early age are often difficult if not impossible to overcome.

Case II.—Miss D., æt. 18 years, dislikes going in company, suffers from headache when she attempts to read or sew, and, as her parents are in very comfortable circumstances financially, she is not compelled from necessity to do either, and she doesn't make very much effort. Perhaps, in the refractive condition under which she labors, it is well that she doesn't.

Physicians have prescribed for her, she has taken iron, gone to health resorts, and tried all sorts of methods in a half-hearted indifferent way. Her family has finally concluded that she is lazy. No one ever suggested that her eyes be examined but when this is finally done it is found that her vision is only $\frac{1}{10}$ improved to $\frac{10}{10}$ with a concave lens. Perhaps, if she had been naturally ambitious her condition would have been worse. If her indifferent, apathetic way of looking at everything had changed to an eager inquisitive searching for facts and proof, this simple myopia, allowed to go on unchecked and uncorrected, might have been changed into progressive myopia with its attendant pathological changes. As it is she has a chance for better times and we will give her glasses and let her see the world as it is.

Case III.—Mrs. L., æt 26 years, one of a large family of children, all healthy, and none of whom, with this exception, ever had any trouble with their eyes. No one ever suggested to her that she had. True, she saw things indistinctly, but she supposed everybody did the same. She was referred to me for a catarrhal conjunctivitis. The history aside from this was as follows: Patient cannot see the time of day by the clock across the room unless she goes close to it. She makes very few friends, because if she meets an acquaintance in the street she cannot recognize who it is until almost on top of them. People think she doesn't want to see them. If she tries to play the piano in company she has to put her nose almost touching the notes before she can see them, so she stays at home; she doesn't read, she doesn't sew, she performs her household duties in an indifferent way. Her husband is a lively man, fond of society, and the monotony of his life becomes tiresome.

An accident, the occurrence of a conjunctivitis, finally forces her in the care of an oculist. Vision is $\frac{1}{10}$ improved to $\frac{2}{3}$ with a simple miner's spherical glass. She has never had glasses on before and is simply astounded. A new world has opened to her. Heretofore her world has not been beyond six inches of her nose. Now she is bewildered and sits in astonishment. She is like the old lady of nursery song. She wonders if she is herself or somebody else. What excuse can there be for such ignorance in a city like this? This patient complains of what myopes frequently do when first putting on glasses. That is the inability to properly gauge distances. As in going downstairs, crossing streets and stepping up curbs. She always came to the curb before she saw it; now she sees it long before, and it took her some time to co-ordinate her movements to her new vision. Now she sees things as they are, and, as she says, she lives in a new world.

Case IV.—Annie B., æt. 12 years, complains of headache and inability to see the blackboard at school. Examination shows she has hypermetropia, and defective vision improved by the proper glass. Is backward in school, is distanced by schoolmates of the same age and even younger. Her face has a stupid expression. It is a case of hypermetropia of moderate degree with a weak ciliary muscle, although the child is well and strong generally. Two months later the report was that the headaches were gone and the mother thought she noticed mental improvement.

Case V.—C. D., æt. 12 years, complains of headache. Patient well nourished, appetite good, sleeps well, and all the functions of the body apparently normal. He is very active and bright, and has advanced in his studies rapidly. He has noticed and volunteered the information that of late when the reading hour comes his head begins to ache, and if he looks steadily at his book the type becomes blurred and he is unable to see it plainly. He has found that if he looks at the floor when the other boys are reading and only directs his eyes on the page when his turn comes, he can do very well except that he sometimes loses the place. Complaint has come to his mother that her boy is inattentive, and she concludes, after hearing his story, that he needs glasses. I find that he has a hypermetropia of 4 and 6 D. combined with an astigmatism of 1 and 2 D. respectively.

This boy may never know what he owes his mother for her intelligent diagnosis of his case, but what would have been the result if she had disregarded his description of his trouble?

He is ambitious and eager to learn. She is equally ambitious to have him advance. He did very well at first, but as his studies advanced and demanded increased application, he found there was something in his economy unequal to the demand. He found that just a little relaxation answered, but even now complaints of inattention were coming in. If his mother had scolded and punished, as parents are too apt to do, he might have, by sheer force, compelled himself to keep up the strain for a time longer, but he is high spirited, and finally would come open rebellion, disappointed hopes and the usual results. But why multiply the cases? Every oculist is familiar with them. It is my desire and purpose to try and bring the general practitioner to a familiarity with them—the family doctor, who is often consulted by his patients not only for sickness but for advice as to how to manage their boys.

It must not be supposed, however, that the wearing of glasses is the only consideration in these cases. Many people, both young and old, suffer from catarrhal affections of the eyelids, which not only interfere with visual acuity but make even poor vision difficult. I will mention one case illustrative of this class.

E. L., æt. 9 years, complains of pain in the eyes, inability to use them for any length of time, constant blinking, etc. Vision = 2-7ths, has very little refractive trouble. No form of glass improves. At the macula a peculiar heaped up appearance is seen. After a three weeks' course of atropia, during which no improvement had taken place, the treatment was stopped. A subacute catarrhal conjunctivitis being present, it was thought desirable to treat it. Applications of nitrate of silver were made twice a week for four weeks, at the end of which time the vision had improved to $\frac{2}{3}$, the irritation and blinking of the lids much less. The appearance at the macula, which is probably physiological, remains the same. This child was naturally intelligent, but was kept at her studies with the greatest difficulty. The reason is apparent. The natural deduction must be evident to all. The eye being the organ of vision receives impressions that are conveyed to the brain, and are there stored up for future use. In order that this storehouse may be filled with the choicest material, it is necessary that the pictures taken in the eye shall be perfect. If this eye, or camera, is itself imperfect it can only receive imperfect impressions. With distorted pictures must come distorted thoughts, and, naturally, distorted actions as well.

Whether the eye is the window of the soul or not, it is certainly the natural window of the brain, and, if we would have perfect development in that wonderful workshop, it is very essential that the sunlight should enter the window in as perfect a form as possible, for poor light is conducive only to poor development.

New York, 49 East 23d street.

ORIGINAL FRENCH TRANSLATION.

THE COMMON BACTERIUM COLI.

By Paul Chéron. Translated for Gaillard's Medical Journal by H. McS. Gamble, M.D., Moorefield, W. Va.

The bacterium coli, discovered in 1884 by Escherich, exists in great quantity in the human intestine and is especially abundant in the region of the duodenum.

The forms of the bacterium coli are very much varied. The more commonly it assumes the aspect of a little spindle-shaped stick with rounded ends, and three or four times longer than wide. At other times, in very fresh cultures, the elements are but very slightly elongated and the appearance is that of a coccus. In old cultures we get forms in the shape of a shuttle elongated bacilli, etc.

The bacterium coli is sometimes, but not always, mobile, and it has a few cilia at each extremity. Some of the bacteria coli are immobile and it is impossible to render them mobile; it is equally impossible to realize the inverse transformation.

The bacterium coli is very readily cultivated in bouillon maintained at a temperature of 37°.

The diagnosis of the bacterium coli and of the bacillus of Eberth is extremely difficult, and Rodet and Roux have even claimed, and still claim, that the bacterium coli may be transformed into the bacillus of Eberth.

Attempts have been made to discover some distinctive characteristics of the two bacilli, and at this time the following results have been obtained:

The bacillus of Eberth is especially found, but yet not exclusively, in the organs of patients with typhoid disease (it is well-known that there are pleurisies and meningitis caused by the bacillus of Eberth without any intestinal lesions); it is always mobile and carries numerous flagella. In the culture upon gelatine par pigure, the layer is less extended with the bacillus of Eberth than with the bacterium coli, and the former is developed less rapidly upon gélose.

The bacterium coli coagulates milk; the bacillus of Eberth does not coagulate it. The former, cultivated upon lactated gélose, causes a rapid fermentation with development of fine bullæ of gas, while there is no fermentation with the bacillus of Eberth.

When the culture upon gélose is colored with turmeric, the bacterium coli reddens it with the production of gas, while the gélose remains blue if the bacillus of typhoid fever has been cultivated. The bacillus of Eberth causes glucose to ferment, and the same is true of the bacterium coli, but it does not cause lactose and cane sugar to ferment. while the bacterium coli gives rise to an energetic fermentation of these sugars. In lactated bouillons, there is no disengagement of carbonic acid gas with the bacillus of Eberth, but the contrary is true of the bacterium coli; the latter produces indol in the solution of *pancreatic* peptone; the former does not produce it.

With glucose the bacterium coli forms a dextrogyrate lactic acid; with the bacillus of typhoid there is produced levogyrate lactic acid, or an inactive lactic acid. When antiseptic substances are added to the culture gélose the bacillus of Eberth is no longer developed after the addition of a dose, which still allows the development of the bacterium coli. These distinctive characteristics have been established by the labors of Chautemesse, Widal, Wertz, Dunbar, Péré, Kitasato, etc.

Now, then, are these characteristics permanent? May not the bacilli be transformed the one into the other? In a very recent and very important paper by Malvoz, we find the exposé of quite a number of experiments by which the author has sought to resolve this question.

By the passage of the bacilli of the colon through phenicated bouillons at 42°, and by successive sowings in this medium, Malvoz has obtained so considerable a modification of these microbes that they have comported themselves in subsequent cultures like the bacillus of Eberth.

Bacilli of the colon thus cultivated, and ordinary bacilli, have been sown in a comparative manner with the bacilli of Eberth in a lactated nutritive fluid; at the end of three weeks of retention in the oven at 37°, the culture of the bacilli of Eberth contained 5.005 p. 100 of lactose, those of bacterium coli subjected to the action of phenic acid 4.805 and 4.62 p. 100, and that of an ordinary bacterium coli non-phenicated 3.556. The cultures upon milk of bacterium coli presented some clots (coagulations), but only after having remained fifteen days in the oven. The new features of the bacterium coli were maintained for several generations, even when the microbes were transmitted through normal media, but little by little, in the series of cultures, these microbes showed a tendency to return to the original type.

Contrarily to Chantemesse and Widal, Malvoz has seen the prolonged keeping of the cultures of the bacillus coli modify their characters to a considerable degree. The reaction of indol is no longer obtained, milk is coagulated but slowly and incompletely, etc. The bacterium coli is able to resist a temperature of 80 for one minute, and certain of its important characters are suppressed.

Rodet and Roux have claimed that one could transform the bacterium coli into the bacillus of Eberth by causing it to traverse the organism of certain animals which they have not indicated. Chantemesse, Widal and Malvoz have shown that the bacterium coli was not modified by its passage through the rabbit.

Malvoz has endeavored to ascertain whether or not the bacillus of Eberth always existed in the subjects of typhoid and what other bacilli were present in the organs at the same time. He has also desired to see if this bacillus was encountered in affections which it was impossible to class in the ranks of typhoid fever.

In four cases of typhoid fever he found the bacillus of Eberth in two, in one the bacterium coli associated with pyogenic microbes, and in the fourth the bacterium coli alone. In this latter case the spleen cultures, prepared post mortem, yielded exclusively a bacillus which the cultures upon potato had caused to be taken for a bacillus of Eberth, but which gave rise in milk to the production of an abundant and vacuoled coagulum, and determined in alkaline bouillon, the reaction of indol.

Malvoz submitted to bacteriological examination the organs of a number of patients who had succumbed to the most diverse affections and taken by chance in a series of autopsies (complicated fractures, hypertrophy of the prostate, acute pleuro-pneumonia, pulmonary emphysema with dilatation of the right heart, etc.). He found, sometimes, the bacterium coli to the exclusion of every other micro-organism, sometimes the bacterium coli associated with microbes resembling the bacillus of Eberth, sometimes this bacillus alone, and sometimes microbes possessing some of the features of the bacterium coli, and some of those of the bacillus of Eberth.

In conclusion, Malvoz, and we accept his conclusion, does not believe that the differences which have been noted between the bacillus of Eberth and that of the colon are sufficient to radically separate these two parasitic agents from each other. Why, in the subjects of typhoid, at the summit of its development, is the bacterium coli, which, as we shall see presently, is found so frequently in the cadaver and which exists in the intestine of dothienenteric patients, absent in all the organs of the body? Why, in certain cases of dothienentery, do we find, by the side of the bacillus of Eberth, other bacilli really intermediary between it and the bacillus of the colon; why, finally, in clearly marked cases of typhoid fever, has the bacillus of Escherich only been found? Is it not because, as Rodet and Roux admit, typhoid fever transforms the organism into a medium of special culture, apt to modify the features of the bacterium coli which becomes the bacillus of Eberth? Its transformation is, perhaps, due to the accumulation in the intestine and in the organism of numerous phenolic products, and thus might be explained the tardy appearance of the bacillus of Eberth in the stools of typhoid subjects, while the comma bacillus, for example, appears in the intestinal products nearly at the commencement of cholera.

The peculiar clinical and anatomical physiognomy of typhoid fever might be due to the special toxic products secreted by the modified bacillus, with a special virulence, but this is a hypothesis scarcely supportable, for microbes presenting the characteristics of the bacillus of Eberth have been discovered in patients who had no symptom of typhoid fever. It has been often said, in these cases, that it was a question of typhoid fever without intestinal lesions, but this manner of speaking seems to us to be (pardon us the expression) clinical nonsense. To the practitioner, typhoid fever will always be the disease described by Louis, and if an individual presents phenomena of inflammation of the meninges and succumbs, the microbologists will vainly find only the bacillus of Eberth in the exudate, and the clinician will say that the patient died of meningitis. No one has seriously attempted to maintain that the meningites containing pneumococci, without lesion of the lungs, were cases of pneumonia of aberrant localization; in spite of that, if care had not been observed, the laboratory physicians would have sacrificed the grandest conquests of the French clinique in order to preserve to a microbe a specificity which they were forced to abandon for others.

In fact, it is possible, but not yet demonstrated, that the bacterium coli is the pathogenic agent of typhoid fever and that it provokes this disease, owing to certain modifications of its virulence on one hand, of the favorable soil on the other. This is the conclusion of Malvoz. It is the one which, at present, seems to us the most rational.

It is known, however, that the bacterium coli, even when extracted from the fœces of a healthy man (Gilbert), is virulent, and it is also known that this virulence varies greatly. We cannot, unfortunately, insist upon this interesting point, and will simply say that one can increase or diminish the virulence of the bacterium coli by the ordinary methods of bacteriology. What is very important, and what

Gilbert has demonstrated, is that there is no "normal" bacterium coli and that this microbe always fabricates poisons which are partly destroyed by the liver or partly eliminated by the kidneys.

II.

1. Hueppe, in 1885, isolated the bacillus of the colon from the stools of a child attacked by cholera nostras. Wyss, in a fatal case of enteritis in a newborn child, succeeded in cultivating this same microbe, but Gilbert and Girode first demonstrated in a satisfactory manner that it was possible to determine a cholera nostras, either grave or mild. In a large number of cases of infectious enteritis observed among young children, Lesage found that the bacterium coli existed alone or was predominant.

Gilbert and Girode have succeeded in provoking, in guinea pigs, an experimental cholera nostras by making them ingest the pure cultures of the bacillus of Escherich. The animals died after having suffered with a diarrhœa, and some of the characteristic lesions were found.

In two cases of cholera presenting absolutely the clinical appearance of Asiatic cholera, Renon isolated the bacillus of the colon. One time it was associated with the comma bacillus, another with the golden pyogenic staphylococcus.

It is known, that in the last epidemic of cholera, Nilter was able, in 20 cases of choleriform diarrhœa, six of which terminated in death, to find the bacterium coli alone or associated with other microorganisms, principally with the bacillus of Friedlander and with the streptococcus. In all these cases the dejections contained no comma bacillus.

The microscopic lesions that are met with in cases of cholera nostras due to the bacterium coli are of the most distinct character (Widal, Ménétrier, Macaigne), the intestine has the hortensia tint, there is psorentery, etc. Lesage has insisted upon the fact that the lesions are often very slightly developed among children. Often, he says, the intestine, the primordial seat of the disease, is normal in appearance and there is no change in its aspect, unless it may be that there is a little desquamation of no significance.

At other times psorentery is discovered, a common lesion upon which there is no reason to insist. The organs contain the bacterium coli, but it is nearly an established fact that the invasion of the economy takes place only at the moment of the agony and after death. In the Summer, Wurtz and Herrmann found one time in two the bacterium coli present in the organs. Lesage and Macaigne have shown that in the Winter the diffusion of the bacillus was less rapid; in their opinion, the invasion takes place above all when there exists a simple diarrhœa or an intestinal sore. Welsh (cited by Macaigne) in two hundred autopsies made in Baltimore, from one to twelve hours after death, found the bacterium coli in one or several organs; but in every case there was a lesion of the intestinal mucous membrane. Marfan and Marin accord also a great importance to the lesions of the intestine relatively to the diffusion of the bacillus. The bile seems to be infected very rapidly and Lesage has found the bacterium coli in it sixty-five minutes after death.

We shall not insist upon the symptomatology of the enteritis due to the bacterium coli, for it presents nothing of special importance. Sometimes it is a question, especially among children, of a prolonged, cachectizing enteritis; sometimes the symptoms, as was seen in the last epidemic of cholera, recall exactly those of the latter. Finally, there is a pyretic form quite common in children (Sevestre) and which seems to be rare in adults. . . . .

In an epidemic of dysentery observed in Italy by Maggioso, this author always found the bacterium coli in the stools; it was almost always associated with the proteus vulgaris, and exceptionally with the bacterium fluorescens liquifacicus, with the staphylococcus pyogenes aureus, etc. Ogata also seems to have witnessed an epidemic of dysentery dependent upon the bacterium coli, and Féré found it eleven times in 18 cases, in the urine of dysenteric patients in Tonkin. This last author believes in a secondary infection. It is permissible at the present time to admit that the bacterium coli is one of the microbes that may produce dysentery.

2. About 1881, Mr. Verneuil proved that the liquid contained in hernial sacs might contain virulent and toxic matters. Nessven and Clado have proved the correctness of the ideas of their teacher. The latter (Clado) has isolated the bacterium coli from the fluid of the sac in several cases of strangulated hernia with choleriform symptoms. Garré has had positive results only one time in eight. In 15 cases of strangulated hernia provoked experimentally in the dog, Bannecken eleven times found the bacterium coli in the fluid of the sac. Wurtz and Despréaux have tied the small intestine aseptically in the rabbit. In five rabbits they discovered but one time the bacterium coli in the blood of the heart, twice in the peritoneum, and once in the exudate of the lung in a state of congestion.

Fraenkel and Bannecken admit that the rapid death which succeeds operations for strangulated hernia is due, in many cases, to the superacute intoxication of the organism from the product secreted by the bacillus.

3. The peritonitis caused by the bacterium coli may exist with or without perforation of the intestine. In the first instance it is evident that a large number of bacilli may pass into the serous membrane; yet, one can often isolate and cultivate only the bacillus of the colon which reproduces peritonitis of a suppurative character in animals.

Laruelle has noticed that peritonitis could be provoked by injecting the bacterium coli held in suspension in the bile or in an emulsion of sterilized fœcal matter. The injection of an ordinary culture of bacterium coli would produce no result.

Peritonitis may be produced without any perforation, and from the experiments of Clado and Bannecken it results that, about the commencement of strangulation, the bacilli traverse the walls of the intestinal tube. . . . .

Peritonitis due to the bacterium coli seems to have neither a special lesion nor symptomatology. Macaigne has, however, been struck in two instances, with the tolerance of the peritoneum of a purulent effusion which occupied the larger part of the serous membrane; in these two cases, the peritoneal infection, although fatal, assumed a torpid form.

4. Gilbert and Girode first showed that the bacterium coli might provoke attacks of suppurative angiocholitis and cholecystitis in the course of biliary lithiasis. The bacillus of Escherich, moreover, is constantly present in the latter portion of the choledoch duct along with the staphylococcus aureus. . . . .

The bacterium coli may entail the development of infectious icterus (Girode), in which the microbe is found in the urine. . . . .

Catarrhal and suppurative angiocholitis due to the bacterium coli is accompanied by the production of nodules of necrosis and by hepatic abscesses; perhaps the clinical evolution has a special form characterized by a pyrexia or by a less violent febrile movement than is the case in infections by micrococci (Macaigne).

5. The bacillus of Escherich frequently exists upon the tonsils in scarlatinous angina (Bourges); often, also, there are in this case multiple associations. . . . . .

6. An endocarditis may be caused by the bacterium coli (Nilter, Thiroloix, Macaigne). In the various observations there was a preexisting alteration of the endocardium due to acute articular rheumatism or to atheroma.

Tavel has seen the bacterium provoke thyroiditis. It is probable that, in one of the cases at least, the organism has been infected by the intestine. Gilbert and Leon have isolated the bacterium coli in metritis and in salpingitis. . . . .

Carville and Wurtz and others have provoked pulmonary congestions by tying the intestine, and have, in several cases, removed the bacterium coli from the lung in a state of purity. . . . .

Chantemesse and Widal have found the bacillus of Escherich in several cases of broncho-pneumonia; Widal has isolated it in a case of ossifiant pleurisy with sub-pleural abscesses; Dermontpollier has seen it associated with the pneumococcus in purulent pleurisy, and Vendricky has succeeded in collecting it from the fluid of a pneumothorax. . . . .

Finally, the bacterium coli of Escherich may also determine attacks of meningitis, and it is certain that several of these cases of meningitis have been attributed to the bacillus of Eberth. Sometimes the infection takes place under favor of a traumatism (fracture of the cribriform plate); sometimes there is a general primary infection which is localized upon the meninges (Neumann and Schaeffer, Adenot); sometimes there are multiple localizations; sometimes, finally, we have to deal with a secondary infection which complicates a general malady. It is probable that the usual door of entry is the digestive canal.

The lesions seem to predominate at the base of the brain, while the convexity is little or not at all interested.

All the facts which we have just summed up show that a large number of organs may present lesions consecutive to the presence of the bacterium coli; but they also prove that this bacillus, so virulent in certain cases, shows itself to be inoffensive in others nearly identical. We all have the bacterium coli in our intestines; it secretes therein toxic products, and yet the algid infectious enteritis determined by this bacillus is rare, and still more rare the localizations upon the meninges in the lung, etc. While recognizing the great protective role of the liver, while admitting the differences in the virulence of the bacillus, it seems to us that the state of receptivity or of non-receptivity of the organism can alone explain, as in many other infections, why certain individuals are striken, while others resist. To place the organism in the best possible condition of resistance to the various infections appears to us to be, in conclusion, the principal duty of the physician, a duty that he will be able to perform successfully only by becoming a hygienist.

SANITARY.

SANITARY WORK IN INDIA.

A CABINET HEALTH OFFICER.

In GAILLARD'S MEDICAL JOURNAL for October I see, without legislative petition, my name changed to one of extended kinship—*Brown*. If as anxious to get my legs under a cabinet table as some one else, I should be pleased to be related to the numerous and influential family of Browns.

Reporting the second day, Sept. 6, Pan-American Medical Congress, my long time friend, "GAILLARD'S," says: "A resolution was introduced by Dr. J. D. Brown, of Texas, relative to the matter of urging upon certain governments the importance of sanitary work. Especial stress was laid upon the matter of Dr. Ernest Hart's recommendations relative to sanitation in India. By the rules of the Congress this resolution was referred to the International Committee, as was also one adopted by the section on hygiene, climatology and demography, relative to the importance of a cabinet health officer in each country. According to the terms of the resolution, such an officer should be national in character. Its incumbent should have a purity of voice and vote in the national councils. He should exercise an independent executive authority comparable to that of other cabinet officers, and finally should be an educated and experienced medical man."

What the International Committee has done or may do with my "resolution" I know not. Here is a copy:

Whereas, In the language of a British journalist, "Greater energy and more systematic administration are needed in regard to the sanitation of India, and England's Imperial responsibilities in this matter are very heavy;"

Whereas, The question has been asked in Austria, Russia, and France: "You English have by your sanitary improvements prevented cholera from gaining a foothold in England. Why do you not attack it in its birthplace, and prevent it from spreading into life in India?"

Whereas, This question has been asked in America: "Why should the whole civilized world be allowed to suffer through the constant dread of invasion, or invasion itself of cholera, on account of the religious fanaticism of the Mohammedans of the East?"

Therefore, Be it resolved, by the Pan-American Medical Congress, that we respectfully commend to Her Imperial Majesty's Secretary for India these recommendations of Mr. Ernest Hart: First, An Imperial Sanitary Department attached to the government of India. 2nd. A Provincial Sanitary Department, etc. 3d A Local Sanitary Department, etc. Then follows a definition of the duties of these offices.

Resolved, That the Secretary General of this Congress be directed to furnish a copy of this to Her Majesty's Ambassador at Washington to be forwarded to Lord Kimberley, Her Majesty's Secretary for India.

First: It will be seen that my idea was to lift this beyond what an Englishman would call an "Americanism." The recommendations are from a British subject, indorsed by a Pan-American Congress. Second: Diplomacy is a plumed and knightly looking fellow, but should often have the Sioux name of Young-Man-Afraid-of-His-Horses. That the question was a "big one" for the British government I knew full well. I remembered her great rebellion, when her subjects in India plunged into open revolt because the Indian contingent were required to bite off cartridges greased with hog's lard. They wanted to fight anyway, but the Prophet's interdiction of the hog as unclean was the pretext. I remembered, but a few months since, Lord Kimberley's reply to a deputation who waited on him requesting his intervention and restriction of the opium trade. Yes, and that, too, of the "Grand Old Man." It was a matter of pounds, shillings and pence. I remembered Dr. Mouat's (Late local Government Inspector) defense of opium,—making it a blessing rather than a curse to her Majesty's subjects in India. A captivating "pick me up." It braced up the natives in times of famine. "When taken by the camel drivers in the sandy deserts of Western Rajputana it enables the men to subsist on scanty food and to bear without injury the excessive cold of the desert, Winter nights, and the scorching rays of the sun." Why bless us all, doctor, it is like whisky. You take it, if sick, to get well; you take it, if well, to keep from getting sick. If cold it makes you warm, if warm it makes you cool—good externally, internally and eternally. The Secretary for India "was told the value of the opium might be taken at no less than thirteen millions of pounds." "The loss of revenue had been estimated at 3,850,000 pounds." "He was bound to say, as Minister responsible for Indian affairs in this country, that the Government did not see their way—at all events at the present time—to dispense with this large revenue." Did not the English Government force the opium trade on China? She did, as certainly as she has lectured

America on all occasions. She did—for the pounds, shillings and pence. We can say now, what we could not say to invited guests: "First cast out the beam out of thine own eye." Epidemic cholera can be stamped out in India, but it will cost pounds, shillings and pence. Putting humanity aside, it should be stamped out as a matter of economy. From 1884 to 1887 cholera destroyed in Europe 250,000 inhabitants, and, as represented by U. S. Commissioner Dr. Shakespeare, caused a loss of $200,000,000. The fellahin of Egypt buried their cholera dead on the banks of the Nile. The overflows washed up these bodies and carried them down the stream to spread death along their course. This practice was prohibited and the good results are witnessed since then. Let England and Turkey prohibit the assemblies of their fanatical Mohammedan and Hindoo populations. Let them prohibit the sacrifice of hundreds of thousands of Mohammedans at Mecca and Hindoos at the Hurdwar Fair, and their distribution of the "disease that begins in death" over the world. Cannot England do on the Ganges what has been done on the Nile? Cannot she find in her broad realm a Governor-General for India like Lord Bentinck, who scattered the Thugs, and of whom it is said: "His policy in India was pacific and popular, and his viceroyship was *marked* by the abolition of Swtti." This viceroy had a record in Flanders, Italy and Egypt, and had served under Sir John Moore and Wellington. From a letter in the London *Lancet*, relative to the Hyderabad Chloroform Commission, see this: "Will you please express to his Highness the Nizam the great gratification it has given me, that, while the Government in England, moved by the clamors of misguided fanatics, has been suppressing scientific researches, in India a ruler should appear who is so wise and munificent as to do this great thing his Highness has done for science." (Signed) H. C. Wood, Philadelphia.

S. Simpson, of Calcutta, before the Medical Society of London, last December, gave a most instructive description of matters in India pertaining to cholera He showed conclusively how very much could be done toward stamping out cholera. Mr. Ernest Hart, editor of the *British Medical Journal*, welcomed these remarks of Dr. Simpson and said: "He had never previously been able to find any light from communications from India on this subject. The reports revealed, as a rule, nothing but confusion, due, in part, to the extraordinary difficulties attending the investigation of the disease, and in part perhaps to *administrative pressure which had been brought to bear on the writers of the reports*." Let the blame rest where it should. The home Government must bear it at present.

In the June following the December meeting, Mr. Ernest Hart read a paper before the American Medical Association, entitled "Water-borne Cholera." He said: "My thesis is that cholera death is a violent death, an unnatural death, a preventable death; that the very existence of epidemic cholera, not to say endemic cholera, is a reproach to the nation and to the community in which it exists." "Greater energy and more systematic administrations are much needed in regard to the sanitation of India, and England's imperial responsibilities in the matter are very heavy, not only to the native races under her protection but to civilization at large."

Many members had their views changed when they faced the question of a new cabinet officer. Notably those from the south and west. On this subject, when first flushed, one finds his professional pride much involved. A doctor with his legs under the cabinet table would be a sight to behold! Ah! Then comes the question: What doctor? In addition to being "an educated and experienced medical man" he should be a man of broad and liberal views, and not sectional in prejudices. For my own part, with professional pride aroused, I was much inclined to favor the creation of an officer of public health before I heard the discussions at the Congress. After that discussion, many members, notably those from the south and west, felt thankful that the doctor could not create such a potentate immediately. If such a king is crowned, it is good to know that the coronation will come after sober reflection, in the future. A prominent member of the Louisiana board objected—that their system was admirable, worked well, was abreast of the times, and the State felt secure and wanted no dictation nor interruption in their work. The friends of the measure held that the cabinet health officer would approve such perfect work; strengthen it by the national arm, etc. But how is this? A member said the sanitary laws, quarantine regulations of Texas were "severe." He recited the interruption of travel and trade from beyond the State, into and through it some time since, during an epidemic. I, seeing no one present from Texas, twice arose to say a word, not half so well as our State health officer could have said it had he been present. I was not recognized by the chair, as the speakers were numerous and more important, and I unknown in the grand army of sanitarians. Since it was not a speech but some Texas remarks, they have not spoiled in keeping. I wished only to say that, while most persons were opposed to any law that interrupted or arrested their pleasure or profit, the gentlemen could not say the law was *unjust*, if he did think it "severe." Additionally, I wished to ask: "What security will Texas have if the influential gentleman and his potent friends should visit the cabinet health officer and say, or telegraph him: We, or our goods, are detained by the severe quarantine laws of Texas. Order Texas to open her gates?" That was all I wished to say.

Suppose that cabinet officer should reckon Texas as half six-shooter and half mustang pony, and no part worthy of protection against those people who feel as Phil. Sheridan expressed it: "If I owned hell and Texas, I would rent out Texas and live in hell." Or, suppose those in authority thought that Texans knew about as much of sanitary laws as their prairie steers—what then? Texas, like Louisiana, desires, can, and will, manage her own sanitary affairs. Her officers are intelligent and alert. If danger threatens her great borders in any direction, *she acts and her decision is final*. It is not necessary to telegraph to Washington for permission or advice, and have dangerous delay, tedious and therefore dangerous investigations, etc. Texas knows the necessity of acting promptly. Knowing her duty she dares to do it. The Texan who "shot things up" for the fun of it is gone. This is the new Texas of intelligence, of progress, of courage, of convictions. Since I returned to my home I received a reprint, 1893, from an intelligent representative medical man north of the Ohio River. Writing of cholera he says: "That the disease was Asiatic cholera, which obtained access to the Mississippi valley through the *rickety States' rights quarantine of New Orleans*, is no longer a debatable question." Yesterday a New York medical journal, October, came to my table with a premature lecture (if needed at all) to the stricken people of Brunswick, Georgia. This language is used: "This *foolhardy* course came to a culmination one day in the form of a public indignation meeting, where the marine hospital surgeons were vilified and roundly berated by prominent and intelligent citizens for the, *to them, sacrilegious disrespect for the fetish of local rights*. 'Whom the gods would destroy they first make mad.'" These matters are mentioned to show that we are not yet ripe for a cabinet health officer. To say more would be to get into politics.

If this hurried paper serves the purpose of helping to kindle the fires about the "rickety States' rights quarantine" and "fetish of local rights" camps, the writer has his reward.

October 25. News from Turkey is the best the world has had except that of nearly 1900 years ago. "The world's great pesthole is at last to be cleansed. The Sultan of Turkey has resolved to put Mecca in something like a healthy condition. The decision is the effect of an intimation from the British Government that, unless the Holy City is cleaned, it will take measures to prevent the annual pilgrimage from India. The Sultan has decided not only to cleanse the town, but to erect, at his personal expense, a great lodging house, capable of containing six thousand persons."

J. D. BURCH.

WASTE OF FOOD.

The *Forum* for September contains an interesting and suggestive article by Professor W. O. Atwater on "Food Waste in American Households." The following is an excerpt:

The cost of food is the principal item of the living expenses of the bulk of the people of the civilized world. Those who have large incomes can perhaps afford to be wasteful, but to the great majority of the people the waste of food is a serious matter—much more so than they realize.

Roughly speaking, half the total earnings of wage-workers in this country and in Europe is spent for the food of themselves and their families. In the Report of the Massachusetts Bureau of Labor for 1884, Hon. Carroll D. Wright, now chief of the United States Department of Labor, has summarized the results of investigations into the cost of living of people with different incomes, especially workingmen's families, in Massachusetts and in Great Britain, and has quoted similar results obtained by Dr. Engel in Germany. Dividing expenses into those for subsistence (food), clothing, rent, fuel and sundries, the percentage of the whole income expended for subsistence varies with the amount of income. The smaller the total earnings, the larger is the proportion spent for food. The averages in Massachusetts were, for incomes of $750 to $1,200, fifty-six per cent. expended for food; and for incomes of from $350 to $400, sixty-four per cent. In other words, according to these figures, the workingman in Massachusetts who earned $1,000 in a year expended on the average $560 for the food of himself and family; the man with $700 spent $300; and the man with $400, $250 a year. In Great Britain and Germany incomes are much smaller, but the proportions expended for food are about the same. Later investigations by the U. S. Department of Labor of the costs of living of families in the central, southern and western States, where food is cheaper than in New England and the eastern states, make the relative expense for food somewhat less. But it is safe to say that, in general, wage-workers use half their money to buy their food. This means simply what they pay the butcher, and the grocer, and the milkman, and does not cover the cost of cooking, except when food is purchased ready cooked, as in the buying of bread.

"It seems a little strange that when food costs so much more than clothing, rent, and other necessaries of life—indeed, as much as all the rest together—people should know so little about its real value for nourishment. When an intelligent man buys a coat he has a pretty fair idea as to whether it fits him or not, how much wear there is in it, and whether he can get as good a fit and as much wear in another kind of coat at less cost. But when he buys his meat and flour and potatoes, he has really very little definite information as to how much nutriment they contain, whether the nutritive materials are of the kinds and in the proportions that are best adapted to the bodily wants of himself and his wife for their work, and of his growing children for the healthy building-up of their bodies, nor does he know exactly whether or not he might obtain just what is needed in equally useful forms and at much less cost. He is very apt to have the idea that what his family wants and must have is 'good nourishing food and enough of it.' This is an excellent principle, but in practical application it is apt to mean, 'Get the kind of food you like ; do not mind if it is expensive, for "the best is the cheapest," and make sure that you eat enough.' The result is bad economy in the purchase of food, waste in the use of it, and, too often, injury to health. And, unfortunately, the poor are the ones that practice the worst economy and suffer most from it.

"One great reason for this evil is that people understand so little about the nutritive properties of different food materials as compared with the prices they pay and with their needs for nourishment. And for that matter, there is a similar difficulty in writing about the subject, because really very little accurate information has been collated in the United States regarding the composition of the foods consumed and the actual eating habits of the people.

"We cannot judge of the nutritive value of food by the quantity. There is as much nutriment in a pound of wheat flour as in seven pounds, or three and a half quarts, of oysters There is still less connection between nutritive value and price. In buying at ordinary market rates, we get as much material to build up our bodies, repair their waste, and give us strength for work, in five cents' worth of flour, or beans, or codfish, fifty cents or a dollar will pay for in tenderloin, salmon or lobsters.

"To supply the wants of the body it is necessary, first, to have enough protein to build up the tissues and keep them in repair, as they are being constantly used up ; and, second, enough fats and carbohydrates in addition to supply the needed energy. If there is not food enough, or the nutrients are not in the right proportions, the body will be weak in its structure and inefficient in its work. If there is too much, damage to health will result.

As the outcome of a great deal of observation and experiment, nearly all in Europe, standards have been proposed for the amounts of nutrients and energy in the daily food required by different classes of people. Those of Professor Voit, of Munich, Germany, are most commonly accepted by specialists in Europe. Voit's standard for a laboring man at moderately hard muscular work calls for 118 grams of protein, and quantities of carbohydrates and fats sufficient, with the protein, to yield 3,050 calories of energy. On the basis of observations made in this country, as well as in Europe, I have suggested a more liberal diet for the man at moderate work: 124 grams of protein and 3,500 calories of energy. Well-to-do professional man and students in Europe, with less muscular exercise than mechanics, have been found to be well nourished with an average of 115 grams of protein and 2,700 calories of energy.

One of the ways in which many people are uneconomical is in the buying of needlessly high-priced foods. For this error, prejudice, the palate, and poor cooking are mainly responsible. There is a prevalent but unfounded idea that costly foods, such as the tenderest meats, the finest fish, the highest-priced butter, the choicest flour, and the most delicate vegetables, possess some peculiar virtue which is lacking in the less expensive materials. Many who have small incomes, and really wish to economize, think it beneath them to use the cheaper meats and inexpensive but substantial groceries. People pay for flavor rather than for nutriment, and in many households high prices are depended on to make the table attractive, when good cooking and tasteful serving would be far better if they were practiced.

The maximum that "the best is the cheapest" does not apply to food. The best food, in the sense of that which is sold at the highest price, is rarely the most economical for people in health. The food that is best fitted to the real wants of the user may be the very kind which supplies the most nutriment at the lowest cost.

Round steak, at fifteen cents a pound, contains as much protein and energy, is just as digestible, and is fully as nutritive as tenderloin at fifty. Mackerel has as high natritive value as salmon, and costs from an eighth to half as much. Oysters are a delicacy. If one can afford them, there is no reason for not having them, but twenty-five cents invested in a pint would bring only twenty-nine grams—about an ounce—of protein, and two hundred and sixty calories of energy. The same twenty-five cents spent for flour, at six dollars a barrel, or three cents a pound, would pay for four hundred and twenty grams of protein and thirteen thousand seven hundred calories of energy. When a day laborer buys bread at 7½ cents a pound, the actually nutritive material costs him three times as much as it does his employer who buys it in flour at six dollars a barrel.

BACTERIOLOGY.

DIPHTHERIA; A BACTERIOLOGICAL STUDY; APPLICATION OF BACTERIOLOGICAL DATA TO ITS DIAGNOSIS, PATHOGENY AND TREATMENT.[1]

By Mr. Veillon, Interne to the Paris Hospitals; Pathologist to the Hospital for Sick Children, Paris.

The specific character of diphtheria had been recognized since Bretonneau's time from the clinical features and morbid anatomy of this affection, but its cause and nature remained obscure until light was thrown on these questions by modern bacteriological investigations. The researches of Klebs,[2] Löffler,[3] Roux and Yersin,[4] resulted in the discovery of the pathogenic parasite of diphtheria. Moreover this discovery was destined to be something more than a mere scientific curiosity; the ætiology of the disease being known, it is possible to diagnose it with certainty, while the genesis of the lesions and symptoms is better understood and hopes may be entertained that a rational and efficacious method of treatment, based on the knowledge thus acquired, will soon be discovered.

I.—The specific bacillus of diphtheria is a rod-shaped organism resembling the bacillus of tuberculosis. It is about as long, but twice as thick, as the latter. The rods are sometimes slightly curved, with rounded extremities. Some of them are constricted at intervals and apparently swollen at both ends. The individual bacilli are usually distinct from each other, but they are sometimes placed end to end in the form of a V, or arranged in groups with the rods parallel or crossways, as is frequently the case in microscopical sections of false membranes. They do not possess any motile power and in a suspended drop of fluid they only exhibit the Brownian movement common to all microscopical bodies.

Colored specimens are prepared as follows: a film of diphtheritic exudation is spread on a cover-glass and dried. The cover-glass is passed three times through the flame of a spirit lamp and then immersed for four or five minutes in a staining reagent. A good dye is obtained by adding a saturated alcoholic solution of gentian violet to pure water until the mixture becomes opaque. After standing for a few minutes, the preparation is washed in water and mounted in xylol Canada balsam. Many other dyes may be used besides gentian violet: Löffler's blue, Roux's compound blue, etc. It should be borne in mind that the bacillus of diphtheria stains by Gram's method, which permits of its being differentiated from other bacteria which do not take Gram's stain. Generally speaking, the younger forms stain uniformly, while the bacilli from old cultures, exhibiting various involution forms (pyriform enlargements), stain more irregularly.

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[1] Translated from *La Semaine Médicale*.

[2] Klebs (Corresp.-Bl. f. Schweiz. Aerzte, August 1, 1893).

[3] Löffler (Mitteilungen aus dem kaiserl. Gesundheitsamte. Bd. II, 1884).

[4] Roux and Yersin (Ann. de l'Inst. Pasteur, 1888, No. 12; 1889, No. 6; 1890, No. 7).

Löffler was the first to obtain pure cultures of the diphtheria organism on a solid medium, consisting of blood serum (calf or sheep) three parts, veal broth one part, peptone one per cent., glucose one per cent., and chloride of sodium 0.5 per cent. This is in reality the best nutrient medium for the organism, though it also grows luxuriantly on ox-blood serum prepared in the ordinary way. Inoculated on the surface of one of these nutrient media, the bacillus forms visible colonies in twenty-four hours at the temperature of the incubator. The colonies appear as white spots, more or less opaque, especially in the center. They are circular in shape and soon become raised above the surface of the serum. If closely set together (and this depends on the number of bacilli inoculated with the needle) the colonies usually remain small and circumscribed; on the other hand, when few and wide apart they have a tendency to spread, and may attain a diameter of four or five millimeters (one-fifth of an inch).

Löffler's diphtheria bacillus does not develop with the same abundance on gelose as on blood serum. To begin with its growth is somewhat retarded. For example, twenty-four hours after inoculation, the tube having meanwhile been kept in the incubator, the colonies appear as almost imperceptible white specks along the track of the needle. These develop in a little while into sharply defined white dots, consisting of thick rounded colonies, opaque in the center, the latter looking yellow by refraction. The colonies are thinner at the periphery, with smooth or finely serrated margins.

The bacillus of diphtheria grows very slowly and with difficulty on gelatine because the latter must be kept at a temperature below 25° C. After the lapse of a few days, however, a fine white streak, or a few confluent white points, are visible along the line of puncture, while the surface of the gelatine shows a small white patch with finely serrated borders. The gelatine remains solid throughout.

Ordinary or peptonized meat broth is a good nutrient medium for the organism in question. During the first few hours after in oculation the fluid looks somewhat turbid, but if the tube is not disturbed the culture becomes deposited on the sides and at the bottom of the tube, the broth regaining its clear appearance, although a pellicle sometimes forms on the surface.

Löffler's bacillus is aerobic, but it may also develop in the absence of oxygen. In the latter case the culture medium becomes acid and remains so. In presence of oxygen, on the contrary, the medium acquires an acid reaction to begin with, but soon becomes alkaline again. If, however, a little glycerine or sugar be added to the broth, the development of the colonies is attended by the formation of certain substances which render the medium permanently acid, but at the same time the bacillus loses some of its activity and virulence.

These technical details may appear somewhat uninteresting to our readers, but they are not devoid of practical importance, seeing that bacteriological examinations for Löffler's bacillus are now regarded as a very important factor in the diagnosis of diphtheria.

II.—The diagnosis of diphtheria is not justifiable because a patient is suffering from an inflamed throat with a pseudo-membranous exudation. The presence of false membranes is by no means pathognomonic of diphtheria.[5] It is a morbid manifestation which may be due to various causes (chemical irritation, different kinds of parasites such as the staphylococcus aureus, the streptococcus of erysipelas, etc.).

In doubtful cases the bacteriological examination is carried out as follows :

The false membranes are scraped *in situ* with a stout platinum wire, previously sterilized by heating. A piece of membrane should also be detached for purposes of examination, for the results of the latter may be fallacious if confined to the saliva and mucus obtained from the patient's throat. The scrapings are filmed on cover-glasses and stained as already described. If on microscopical examination with an oil-immersion lens, groups of bacilli are found presenting the morphological characters of Löffler's organism, the case is one of diphtheria. But in practice one seldom meets with such simple cases. The preparations usually contain numerous bacilli of different shapes and sizes, many of which are present in the mouth under normal circumstances, and it is difficult to determine whether Löffler's bacillus is present in the preparation or not. The bacteria which are most commonly found in these preparations are long filaments of leptothrix, large micrococci, very fine diplococci, small ovoid diplococci and lastly

[5] Wurtz and Bourges (Arch. de méd. expér. et d'anat. path., May, 1890). Bourges (Paris Thesis, 1891).

various bacilli, some longer and thinner, others shorter and stouter than the specific bacillus of diphtheria. Gram's method is an excellent means of eliminating many of these organisms which do not take up the dye while diphtheria bacilli are deeply stained. It should not be forgotten, however, that some of the bacilli commonly found in the mouth, and having no connection whatever with diphtheria are also stained by this method. It is evident, therefore, that a simple microscopical examination is usually insufficient for purposes of diagnosis, and the results require to be confirmed by culture experiments.

III.—For this purpose, Löffler's serum or sterilized coagulated ox-blood serum is used. The serum should be freshly prepared, the bacillus growing with difficulty on a dry surface. The inflamed mucous membrane is scraped, as already described, with a platinum wire which is then drawn across the surface of the serum contained in three tubes. The tubes are inoculated without charging the wire afresh with the infective material, so that one of the cultivations may consist of as few colonies as possible. The tubes are then kept in the incubator at a temperature of 37 C. for twenty four hours. When examined at the end of that time, they are usually found to contain numerous colonies. The tube in which the colonies are fewest and farthest from each other is selected, and the question is now to recognize the colonies of Löffler's bacillus if there be any in the preparation. Seeing that this organism grows more rapidly on blood serum than the majority of other bacteria, the investigator should direct his attention to the largest colonies, leaving the small ones out of the account. Should the culture show a large number of rounded colonies about the size of a pin's head, of a grayish white color, with an opaque center, the probabilities are in favor of diphtheria; but the diagnosis is much more doubtful if the cultivation contains but few colonies presenting these characteristics. In any event, one of these colonies should be picked out with the sterilized platinum wire, spread over a cover-glass, stained and examined to see if the organism exhibits any of the morphological characters of the bacteria bacillus. A microscopical examination is essential, because there are a few bacteria which grow as rapidly on serum as Löffler's bacillus, and which might, therefore, be mistaken for it on simple inspection of the colonies. Among these bacteria are different varieties of micrococci which are readily distinguished under the microscope, and which are not likely to give rise to any confusion. But certain bacilli are sometimes also present in the cultures, the colonies of which are not so easily differentiated from those of Löffler's organism. The bacterium coli commune, for example, develops very rapidly on blood serum, but its colonies are more transparent than those of the diphtheria bacillus, and on microscopical examination there is no difficulty in recognizing that one is dealing with a larger bacillus than that of diphtheria. Moreover the bacterium coli commune is a motile organism which does not stain by Gram's method, these two characteristics being sufficient by themselves to distinguish it from Loffler's bacillus. It is much more difficult, however, to differentiate between the colonies of the latter and those of another bacillus which is shorter and stouter than the organism of diphtheria, but the colonies of which are white in color and more transparent. Lastly, there is the pseudo-diphtheria bacillus, which is absolutely identical with Loffler's; but as very few, if any, are to be found in the mouth, it gives rise to but few colonies.

IV.—It is evident, therefore, that the bacteriological diagnosis of diphtheria involves a somewhat delicate investigation for the success of which a certain dexterity in bacteriological manipulations is indispensable. If, however, numerous groups of bacilli are found in preparations of the false membrane while a large number of colonies of a bacillus, answering the description already given of Löffler's bacillus are obtained by inoculation on serum, the case may be diagnosed with almost absolute certainty as one of diphtheria. When, however, the bacilli are few in number with but few characteristic colonies in the cultures, the diagnosis remains doubtful and the investigation must be carried further. For this purpose, some broth is inoculated with one of the suspicious colonies. The broth is placed in the incubator for from twenty-four to forty-eight hours, and at the end of that time some of it is injected under the skin of a guinea-pig, this animal being especially sensitive to the action of the organism of diphtheria. If the guinea-pig dies within thirty-six or forty-eight hours with fibrinous œdema at the seat of inoculation, of effusion into the pleura, congestion of the internal organs and especially of the lymphatic glands and suprarenal capsules, we have irrefutable proof of the existence of diphtheria.

Although in practice one is usually content, for the sake of rapidity, with a microscopical examination and some culture experiments, yet the investigation, to be rigorously scientific, must include isolation of the bacillus and inoculation experiments.

Moreover, it should be borne in mind that even the most experienced bacteriologists may fail to discover the diphtheria bacillus on a first examination. In case of failure, therefore, the examination should be repeated.

[6] Roux and Yersin (Loc.cit.). Löffler (Loc. cit.).

V.—The exact notions we now possess on diphtheria are likely to prove useful not only from a diagnostic point of view, but also in respect of the treatment of this affection. No rational method of treatment can be devised, however, unless and until the action of the bacillus on the diseased organism is definitely determined.

Löffler's bacillus multiplies with rapidity in contact with a mucous membrane or the excoriated skin. It may only give rise to some redness of the invaded part (inflammation without a false membrane), but in the vast majority of cases it determines an intense inflammatory reaction in the mucous membrane, resulting in the formation of a false membrane. The parasite develops on the epithelial surface, where it secretes its toxic products. The mucous membrane is congested and œdematous; the epithelial cells are swollen and vesicular: the corium is infiltrated with lymph cells and blood corpuscles; in many cases the small vessels are the seat of thrombosis; while the fibrinous exudation forms an abundant meshwork, the spaces of which contain numerous small white cells, a few red corpuscles, and necrosed epithelial cells. The bacilli are found in the thickness of this false membrane; they never invade the mucous membrane itself, lymphatic glands, blood or internal organs.

VI.—Inflammation of the throat and croup are not by any means the only manifestations of diphtheria; on the contrary, the patients usually present grave constitutional symptons; the face is pale and of an almost leaden hue, the skin generally is of a waxy color, the patient complains of profound depression and a general sensation of fatigue. Fever is frequently present, while enlargement of the cervical lymphatic glands, albuminuria, cardiac troubles and paralysis are of constant occurrence in this affection.

All these manifestations are accounted for by the fact that while developing on a limited area of mucous membrane, not only does the bacillus of diphtheria give rise to such local changes as inflammation of the throat and croup with the formation of a false membrane, but it also secretes a poisonous product, a toxin, which is readily absorbed into the system resulting in general intoxication. This toxin has been thoroughly studied by Roux and Yersin; it is produced by the protoplasm of the bacilli and is present in large quantities in the culture media freed from bacilli by filtration through porcelain. It is analogous to diastase and the poison of certain venomous snakes; it is soluble in water, but is precipitated by alcohol,while it is attenuated and destroyed by exposure to a temperature of from 60 to 100° C.

All attempts to obtain this toxin in the pure state have proved unsuccessful. They have only resulted in the precipitation of complex albuminoid substances so that there is still considerable divergence of opinion among authorities on the exact nature of the toxic principle in question. According to Roux and Yersin, it is of the nature of a diastatic ferment; Brieger and Frankel regard it as a toxalbumen, and Gamaleïa[8] as a nucleo-albumen derived from the protoplasm of the bacilli. Be this what it may, the toxin of the diphtheria bacillus is an extremely violent poison. If a broth culture of this organism be evaporated *in vacuo*, a residue is obtained. One centigramme of this dried residue contains six-tenths of a milligramme of inert ash. Although the diphtheritic toxin forms but a small proportion of the remaining four-tenths of a milligramme, this dose is sufficient to kill at least eight guinea-pigs, weighing four hundred grammes each.

This toxin inoculated to animals produces nearly all the characteristic lesions of diphtheria.[9] A fibrinous œdema develops at the seat of inoculation, associated, it may be, with extravasation of blood. As in the human subject, the lymphatic glands corresponding to the affected part are inflamed, swollen and tender to the touch. The injection of this substance into the subcutaneous cellular tissue is sometimes followed by gangrene and sloughing of the skin at the point of injection, corresponding in the human subject to necrosis and sloughing of the tonsils. To the influence of this toxin must be referred such diphtheritic phenomena as general depression, fatty degeneration of the liver, nephritis and albuminuria, degeneration of the heart, effusion into the pleuræ, congestion of the internal organs, going on, it may be, to hemorrhage. The various palsies[10] that are so characteristic of diphtheria can easily be shown to be due to the same cause.

In short, from a pathogenic point of view, diphtheria is nothing more or less than an intoxication caused by a toxin secreted by the bacillus in the false membrane where it grows and develops. It is therefore a local disease from the distribution of the specific micro-organism, but a constitutional one by intoxication. It would be a mistake to regard this intoxication as an exceptional phenomenon present only in the graver, *toxic* forms of this affection; on the contrary, it exists in a variable degree in every case of diphtheria, as is shown by the fact that patients, who have recovered rapidly from a benign attack of the disease, frequently develop multiple paralyses, the result of latent intoxication. Cases have been recorded of death

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[7] L. Brieger and C. Fraenkel. Untersuchungen über Bakteriengifte (Berl. klin. Wochensch., 1890, Nos. 11-12).

Gamaleïa (Semaine Médicale, 1892, p. 75).

[9] Morel (Paris Thesis, 1891).

[10] Roux and Yersin (Loc. cit.). Gombault (Arch. de neurol., 1880).

by syncope during convalescence from diphtheria, a proof that the myocardium had been affected by the toxin.

VII.—In many cases, the influence of the diphtheria bacillus and its toxin is not sufficient to account for all the symptoms and lesions. The disease is indeed of a much more complex character than is generally believed. As already mentioned, the development of the bacillus on the mucous membrane of the throat excites an inflammatory reaction in the latter, attended by a pseudo-membranous exudation; moreover, it is a recognized fact that the inflamed mucous membrane is a favorable medium of culture for all the microbes which are normally present in the mouth, not to mention those that are introduced with the inspired air, food, etc. The part played by these secondary parasites is not accurately known, but there can be no doubt that they develop much more rapidly on the diseased than on the normal mucous membrane. It is to their action that the exudation which tends to form on the tongue and gums, and the offensive odor of the breath in diphtheria are to be referred. Some[11] of these organisms have already been fully studied and no doubt is permissible as to their virulence in view of the morbid manifestations which they are capable of exciting. I am referring to the streptococcus pyogenes, pneumococcus and staphylococcus pyogenes.

The streptococcus is not unfrequently (in 5.5% of individuals, according to Netter) present in the mouth under normal circumstances. It is easy to understand that the diseased mucous membrane is a very favorable soil for the growth of this organism, which thereupon acquires pathogenic properties. It should also be borne in mind that the streptococcus pyogenes is very generally present in the air, in dust, etc., and that infection by this organism may become superadded to the primary specific infection at any moment during an attack of diphtheria. In any event, the streptococcus is frequently found in association with the bacillus of diphtheria and many of the complications of this affection are to be attributed to this cause. Locally, it intensifies the inflammatory reaction, with a tendency to infiltration of the mucous membrane. In many cases it gains access through the lymphatics to the neighboring glands, where it sets up suppuration. It is constantly present in the glandular abscesses, the phlegmonous adenitis of diphtheritics. In the same way the occurrence of suppuration (otitis media,[12] chondritis and perichondritis of the larynx, mediastinal abscess) at some distance from the primary seat of inflammation is in almost every case to be traced to the action of this organism. It is the most common cause of erysipelas around the tracheal wound after tracheotomy, as well as of the tracheal and peritracheal abscesses. Lastly, in a certain proportion of cases, it gives rise to the empyema and broncho-pneumonia[13] which are such a frequent cause of death in diphtheritic children.

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[11] Löffler (Loc. cit.). Prudden and Northrup (Amer. Jour. of the Med. Sciences, 1889). H. Barbier. Dequelques associations microbiennes dans la diphtérie (Arch. de méd. exper. et d' anat. path., May, 1891).

[12] Moor (Centr.-Bl. f. Bakt., July 8, 1891).

The development of the streptococcus is apparently favored by the action of the toxin of diphtheria on the tissues, for it not unfrequently happens in these cases that the blood itself is invaded by the organism in question giving rise to the septicaemic forms of diphtheria, which are almost invariably fatal. It is evident, therefore, that the streptococcus pyogenes plays a very important part in the pathogeny of the accidents of diphtheria, and there is no difficulty in admitting that the treatment should, in part, be directed to preventing infection by, or the development of, this organism.

Next in importance to the streptococcus comes the pneumococcus, which is also sometimes present in the false membranes. Like the streptococcus, it is also apt to excite suppuration in various parts (otitis media, empyema, broncho-pneumonia); it is not so frequently met with as the latter organism, however, but they are sometimes found in association.

The *rôle* of the staphylococcus aureus in diphtheria is comparatively insignificant. It is occasionally met with in small numbers in the false membranes, and it may also give rise to minor suppurations such as small abscesses, impetiginous eruptions, etc.

VIII.—The pathogeny of the manifestations of diphtheria being known, the problem of how to prevent, palliate or cure these manifestations becomes much easier. The latter may be arranged into three groups: (1) local manifestations due to the direct action of the diphtheria bacillus; (2) constitutional symptoms due to the influence of its toxin; (3) manifestations due to secondary infections. The treatment should be of such a nature as to meet these three indications.

The parasite being localized over a small extent of mucous membrane, an attempt should be made to destroy it, or, at any rate, to prevent its development. A glance at the history of diphtheria is enough to show that most of the specifics which have been employed in the treatment of this affection are capable of exerting an injurious action on the parasite in the throat, such for example, as hydrochloric acid, recommended by Bretonneau and Trousseau. It must be admitted, however, that until the discovery of the bacillus, local treatment was directed especially to preventing the formation of pseudomembranous exudation. Nowadays an attempt is made to combat not only the local lesion, but the cause of that lesion. To enumerate the various remedies which have been recommended in the treatment of diphtheria will serve no purpose. Some of these might, still, however, be employed with advantage. To be successful, the remedy, whatever it may be, must be sufficiently antiseptic to kill the specific bacillus or arrest its development without damaging the mucous membrane. Loffler advocated the use of corrosive sublimate, while other observers prefer carbolic acid, etc. The following are a few of the formulæ in general use :

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[13] Netter. Etude bactériologique de la broncho-pneumonie chez l'adulte et chez l'enfant (Arch. de méd. expér. et d'anat. path., 1892, pp. 28–65).

The first is Gaucher's [1] mixture, which seems to me to be a little too caustic :

R.	Camphor	ʒ v.
	Castor oil	ʒ iij.
	Rectified spirit	ʒ iiss.
	Crystallized carbolic acid	gr. 75.
	Tartaric acid	gr. xv.

Berlioz and Yvon's sulphoricinated phenol possesses about the same composition, but is less caustic :

℞.	Naphthol	ʒ iiss.
	Camphor	℥ v.
	Glycerine	℥ j.

Dr. J. Simon, on the other hand, gives the preference to salycilic acid :

℞.	Salycilic acid	gr. xv.
	Alcohol	ʒ iij.
	Glycerine	℥ j.
	Infusion of eucalyptus	℥ ij.

Numerous other substances have been recommended, such, for example, as tincture of iodine, permanganate of potassium, lemon juice, etc. They are all undoubtedly sufficiently antiseptic to kill Loffler's bacillus, but the difficulty is to bring the remedy into immediate contact with the organisms, which are usually covered and protected by pseudo-membranous debris. The difficulty is got rid of in the following manner :

(1) The false membranes, which contain the bacilli, are detached and removed. For this purpose a mop of cotton-wool, or better of soft down, is employed. The operation should be carried out very cautiously ; it would be safer to leave the false membrane in position

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[1] Gaucher (Semaine Médicale, 1889, p. 295).

than cause bleeding, for the solution of continuity thus produced would increase the risk of toxic absorption and secondary infection by other microbes. The operation is always a very delicate one, especially in unruly children.

(2) The affected parts are painted with one or the other of the above mixtures, whether the false membranes have been detached or not. The operation may be repeated every hour or every two hours, according to the gravity of the case But the remedy thus applied cannot reach the bacilli hidden in the folds of the mucous membrane, the tonsillar crypts, etc., where they are protected by mucous or fibrinous exudation. What happens is that a few minutes after the application, the caustic is completely absorbed, and the bacilli which have not been destroyed thereby go on developing as before. The indication is, therefore, to employ a procedure capable of arresting the development of the micro-organisms which are not killed by the application. This result is obtained by irrigating the throat at short intervals with weak antiseptic solutions, so as to produce no injurious effect on the inflamed mucous membrane.

(3) The throat may be irrigated very frequently every quarter of an hour, with an ordinary douche; a liter of fluid, or even a larger quantity may be used for that purpose. The antiseptic solutions most frequently employed are saturated boracic lotion, corrosive sublimate (1 : 10,000), or carbolic acid (1 per cent.). To these solutions an acid, such as lactic acid, should be added for reasons to be presently given, in dealing with the toxin of diphtheria.

To recapitulate, therefore, the local treatment of diphtheria consists in the removal of the false membranes which harbor the bacilli; followed by the application of strong antiseptics to kill the organisms, and very weak, but frequently repeated, antiseptic douches to arrest their development.

IX.—We have already alluded to the extreme toxicity of the toxin of diphtheria, and we have shown that symptoms of poisoning follow the administration of infinitely small doses, so that even though we succeed in preventing the further growth and development of the bacilli, the quantity of toxin already secreted is sufficient to cause grave accidents. The treatment should also be directed, therefore, to removing this source of danger. The bacilli being confined to the false membrane it is evident that the latter is the seat of production of the toxin which might perhaps be destroyed before it has time to be absorbed into the system. Some of it is no doubt carried away in the solution employed for irrigation purposes, for, as already stated, the toxin of diphtheria is soluble in water. Moreover it has been shown by actual experiment that it is destroyed by certain chemical agents, belonging to the acid group. If the diphtheria bacillus be cultivated in broth to which glucose has been added, the reaction of the culture medium becomes acid and remains permanently so; and if this culture be inoculated it is found to have lost some of its virulence, that is to say, that the toxin has been destroyed or attenuated.

In the same way if an acid, such as lactic or tartaric acid, be added to a very virulent broth culture of the bacillus, the culture becomes less and less toxic until it may be absolutely innocuous. This property of certain acids of neutralizing the toxin of diphtheria may be utilized for purposes of treatment by adding a small quantity of an acid to the antiseptic throat douche: for example, 1% of lactic acid may be added with advantage to boracic acid lotion.

Unfortunately, these remedies can only act on the toxin present in the mouth, or on the surface of mucous membrane; they cannot reach the toxin after its absorption into the general circulation, and yet it is of the greatest importance to be able to neutralize the toxic agent which is being carried to all parts of the organism in the blood. It is obvious that this result cannot be obtained by the use of acids or other chemical substances which would themselves exert a toxic influence on the system. Thanks to the researches of Behring, Kitasato and other investigators, we are now in possession of a new method, scarcely as yet out of the experimental stage, but which has already excited sanguine expectations; I am referring to the antitoxic method, viz., serotherapy.[14]

To form an accurate conception of this method, it is necessary to be acquainted with certain facts of experimental pathology. If a small quantity of broth culture of the diphtheria bacillus, previously filtered through porcelain to free it from all microbes, be injected under the skin of a guinea-pig, the animal dies at the end of thirty-six or forty-eight hours with lesions and constitutional symptoms of diphtheria, due, as already pointed out, to intoxication with the toxin of this affection. Is it possible to render guinea-pigs insusceptible to the action of this toxin? Brieger and Fränkel[15] and subsequently Behring and Kitasato,[16] and Behring and Wernicke[17] have endeavored to secure this result by various methods. The first of these consisted in injecting into the subcutaneous tissue of a guinea-pig from 10 to 20 c. c. of a broth culture of Löffler's bacillus of three weeks' standing, after exposure to a temperature of from 65 to 70 C. for an hour. But animals may also be vaccinated by successive inoculations with diphtheria cultures containing gradually decreasing quantities of trichloride of iodine, or with the pleural effusion from animals which have died of the disease, or lastly, by injecting a 1 or 2% solution of trichloride of iodine immediately after inoculation with Löffler's bacillus. The animal vaccinated by any of the above methods is allowed a few weeks' rest, at the end of which it receives with perfect impunity increasing doses of virulent toxin.

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[14] Behring. Die Blutserumtherapie bei Diphtherie und Tetanus (Zeitsch. f. Hyg., XII, 1).

[15] L. Brieger and C. Fraenkel (Berl. klin. Wochensch., 1890, No. 49 and Semaine Medicale, 1890, p. 452).

[16] Behring and Kitasato (Deutsche med. Wochensch., 1890, Nos. 49 and 50, and Semaine Médicale, 1890, pp. 452 and 457).

[17] Behring and Wernicke (Zeitsch. f. Hyg. Bd. 11).

Researches undertaken in the view of determining how this immunity was acquired, have led to certain very important discoveries. For example, it was discovered that animals could be rendered insusceptible to the action of the diphtheritic toxin by inoculation with the serum of a vaccinated animal. Broth containing virulent diphtheritic toxin is rendered so innocuous by the addition of the serum of a vaccinated animal that it can be injected into guinea-pigs without giving rise to any accidents. This led to the conclusion that the blood serum of an animal rendered thoroughly insusceptible to diphtheria was capable of destroying the toxin of that disease.

We were, therefore, in possession of an antitoxic substance capable of neutralizing the toxin of diphtheria in spite of its extreme virulence. This antitoxic substance was immediately utilized in the treatment of diphtheritic animals. The method is known as Behring's serotherapy.

As a matter of fact guinea-pigs may be saved by injections of antitoxic serum after inoculation with fatal doses of diphtheria cultivations. The chances of recovery are greatest if the serum is injected within a few hours of inoculation. After twenty-four or thirty-six hours a much larger dose of serum, must be administered and even then the treatment is seldom successful. At the present time, therefore, it is possible, from an experimental point of view, to obtain an antitoxic substance, a veritable antidote of the poison of diphtheria, which is capable of protecting a healthy animal from infection, while it may bring about a cure in a diseased animal if injected early enough in the attack.

These experimental notions are as yet practically inapplicable to the human subject, and that for several reasons. As just stated, the injections of antitoxic serum only produce a favorable effect if resorted to early in the case (twenty-four or at latest thirty-six hours after infection). Now in man the physician is not called upon to intervene until several days after infection, when the disease is fully established and the toxin has already committed irretrievable damage in the economy. Moreover, it is calculated that for a child, weighing 40 pounds, a dose of 50 c.c. of very active serum would be required and it will be admitted on all hands that the injection of such a large dose of serum into the subcutaneous tissue of a young patient is likely to be attended by considerable difficulty.

Be this what it may, the facts above enumerated are so important that they cannot be passed over in silence. The method is open to improvement and some means may still be discovered, either of increasing the antitoxic activity of the serum or of isolating the antitoxic principle itself, which will probably prove less unwieldy.

It should be distinctly understood that this method is only intended to counteract the effects of the toxin, for it has no influence on the development of the diphtheria bacillus at the seat of infection.[18] Consequently, the accidents arising from the existence of the local lesion, from the presence of a pseudo-membranous exudation, such as croup, for example, are in no way amenable thereto, so that should this method be applied at some future date in the treatment of human diphtheria, the indications already described for the local treatment of this affection remain unchanged.

X.—As already demonstrated, Löffler's bacillus and its toxin are not the only source of danger in diphtheria. The patient should be protected as far as possible from secondary infection by the streptococcus or pneumococcus. The same prophylactic measures should be adopted to attain this object as are resorted to to prevent infection by the germs of microbial diseases in general, and diphtheria itself in particular. The successful treatment of diphtheria calls for greater hygienic precautions than the mere removal of the patient from a general ward to a pavilion specially reserved for such cases. It stands to reason that, Löffler's bacillus being present in all the cases treated in such a pavilion, the risk of infection by this organism is *nil*, but it should be borne in mind that some of these patients may be suffering from mixed infections; as a matter of fact the streptococcus is not unfrequently to be found in the buccal secretions of such patients, while broncho-pneumonia with pneumococci is occasionally met with under these circumstances. It is obvious, therefore, that patients suffering from simple diphtheria may be contaminated by being brought into contact with mixed cases, and it is not rare to meet with secondary epidemics from this cause. It is probable that the infective organisms above referred to can be transmitted from one patient to another through the medium of the air, but in the majority of cases the infection is propagated by the hands of attendants, instruments, dressings, etc.

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[18] Behring and Missen (Deitsch. f. Hyg., Bd. VIII.).

In hospital practice it is impossible to isolate each diphtheritic patient in a separate pavilion; but why should not Prof. Grancher's[19] method be more generally applied? The benefit to be derived from the adoption of precautionary measures in each individual case is well shown in this author's publications on the subject.

Such precautions are especially necessary after tracheotomy, for not only is the patient exposed to infection through the tracheal wound, but the vitality of the pulmonary system is lowered by the passage of the inspired air directly into the lungs without previous filtration through the nose. Moreover, the tracheal cannulæ themselves are a very common source of infection, especially the inner ones, which are but too often cleaned with such weak antiseptics as boracic lotion. Broncho-pneumonia may thus be transmitted directly from one patient to another. Tracheal tubes should be carefully sterilized, therefore, by boiling in plain water or a weak carbolic acid solution.

All dressings should be sterilized before use, and the external opening of the cannula should be covered with moist gauze for the purpose of purifying the inspired air The gauze should be changed as soon as it is soiled with the tracheal secretions. Lastly, the atmosphere around the patient should be saturated with moisture by means of a steam kettle containing some carbolic acid solution.

In this way the propagation of secondary infections may be prevented to a certain extent, but no provision is made to check the development of the germs in patients already infected; for example, the streptococcus and pneumococcus may already have gained access to the mouth when the patient is first seen. The desired result is then best secured by means of antiseptic irrigations of the bucco-pharyngeal and nasal cavities. Should the infection be fully established, all abscesses, etc., are to be treated locally like suppuration generally. In the septicæmic forms, benefit may be derived from the administration of general antiseptics such as quinine, naphthol, salol, etc.

It need scarcely be mentioned that a rational treatment of diphtheria, based on ætiological grounds, should comprise the use of tonics which revive and sustain the patient's strength, enabling him successfully to struggle against the numerous influences which tend to weaken the organism.

XI —The results of recent bacteriological discoveries have not only proven of great service in establishing the diagnosis and treatment of diphtheria on a firm basis, but they have also led to the adoption of more efficient prophylactic measures.

Löffler's bacillus exists in the buccal secretions, in the false membranes and in the expectoration, all of which should be destroyed outside the body, while all articles contaminated thereby should be thoroughly disinfected. The bacillus being killed by exposure to a moist temperature of 60° C. it follows that the best disinfectant is heat. Hence all brushes, tampons, and cotton-wool used for dressing purposes should be immediately burnt, while soiled linen, spoons and instruments should be boiled.

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[19] Grancher. Essai d'antisepsie médicale (Semaine Médicale, 1890, p. 198).

The hands of the physician and his assistants are disinfected by washing in sufficiently strong antiseptic solutions; strong carbolic acid lotion, or corrosive sublimate 1 : 1000, acidulated by the addition of a 1 per 1,000 solution of hydrochloric acid. These are no doubt powerful antiseptics, but the hands must be thoroughly permeated therewith by a vigorous use of the brush.

The atmosphere of the room is contaminated by particles of infective material coughed up and expectorated by the patient. He should be isolated, therefore, in a separate room, and, as far as possible, nobody should be allowed to approach him except those in attendance. The latter should wear a cotton blouse, to be removed on leaving the room. All exposed parts, the hands, etc., should be washed and disinfected; no food or drink is to be taken by the attendants in the patient's room.

In respect of the room itself, the carpet, curtains, etc., should be removed, as they are apt to harbor the infective germs. At the close of the case, the apartment is to be thoroughly disinfected. The bedding, linen, etc., are wrapped up in a piece of oilcloth and sent to the disinfecting apparatus. The most difficult part of the operation consists in disinfecting the furniture, floor and walls.

The air of the infected room becomes charged with Löffler's bacilli clinging to dried particles of mucus which are deposited with the dust in every corner, in the fissures of the floor, etc. It has been experimentally demonstrated that the bacillus of diphtheria is capable of retaining its vitality and virulence for several months provided it is protected from external influences by a thin coating of albumen. Diphtheria is not unfrequently met with in persons who have been in rooms in which a case of this affection has occurred, it may be several months previously, but which have since remained untenanted. Contaminated apartments could not, therefore, be too carefully disinfected.

A strong acid solution of corrosive sublimate in the form of a spray is a good disinfectant for walls, ceilings, curtains, etc. The operation should be conducted with the greatest care so that no corner, however small, should escape disinfection. The objection to this method of procedure is that corrosive sublimate is not very searching, and infective germs deposited in small holes and fissures may not be reached by the spray. It is safer to wash the floor and such of the furniture as will stand it, with hot water, moist heat being the most reliable of all disinfectants.

Apartments containing much furniture, etc., had better be disinfected with sulphurous acid gas For this purpose about an ounce and a half of sulphur per cubic meter of space is burnt in the closed room. The sulphur is contained in an iron vessel placed in a tub half filled with water, to avoid setting fire to the floor or furniture. The disinfectant is rendered more active by saturating the atmosphere of the room with moisture by means of a steam kettle. The sulphur is then lighted after being previously moistened with a little alcohol.

The doors and windows are closed, all cracks and fissures being stopped with paper. At the end of twenty-four hours the room is opened and freely ventilated for at least forty eight hours.

Generally speaking it should be borne in mind that air and light are excellent disinfectants which should be allowed free access to the disinfected room.

The room, furniture and attendants having been disinfected, a last source of infection still remains to be dealt with, viz., the patient himself. It must not be forgotten that for some time after the attack, during convalescence and even after complete recovery, virulent diphtheria bacilli are still to be found in the mouth. Löffler's bacillus has frequently been detected in the buccal secretions after recovery from diphtheria, and inoculation experiments performed with cultures thus obtained usually showed that the organism had retained all its pathogenic properties.

How long after the attack does the bacillus persist in the mouth? We are not yet in a position to give a definite answer to this question, but its presence may still be demonstrated in some cases at the end of a month. The obvious conclusion is that one should avoid coming into immediate contact with the patient during that period of time, and in the interests of those around him as well as his own the application of the antiseptic douche to the buccal and nasal cavities should be continued for several weeks.

SELECTIONS.

INFLUENZA IN 1893.

By Sir Peter Eade, M.D., F.R.C.P., Consulting Physician to the Norfolk and Norwich Hospital.

This is the fourth year of the prevalence of influenza in this country, and as I have in the three previous years placed on record my observations of the disease in this East Anglian district I venture to relate my further experience; for, although the general history and features of influenza have been very fully and learnedly dwelt upon by numerous writers, and again quite recently in Dr. Parsons' recent report to the Local Government Board, I do not think that this subject is by any means exhausted. In looking back over these past four years it may be said that the disease has always shown its own distinct type and its specific individuality, and the primary seizure has varied but little, except as regards the severity; yet when a careful note is made of its complications and secondary manifestations it will be seen that they have varied so much in character and intensity in the different years that it may be said there have been different ailments to appreciate and to treat. Thus, speaking broadly, in the first year the primary fever was more severe; acute inflammations more constantly complicated the seizure; pleurisy with effusion was more frequent; neuritis and severe local neurosis were more common; while the bronchial affections rarely passed beyond the condition of dry sibilant rhonchus. In the second year (as in each succeeding year) pneumonia was common, but with less pleurisy, while a greater tendency to bronchitis with secretion showed itself. In the third year primary local neuritis had almost disappeared, but there was an increasing tendency to acute disturbance of the action of the cerebral and spinal centers, frequently followed by secondary or peripheral nerve affections; active gastro-enteric symptoms appeared also to be increasingly frequent, and still more so in this present year, 1893. In this last year the special feature of the disease has been the still more frequent implication of the nervous system, both primarily and secondarily, without other complications, as is shown by the frequent occurrence of delirium, mental excitement or of actual mania, or by the supervention of cerebral or spinal meningeal inflammation. And, indeed, so much less severe has the initial fever, as a rule, now become, and so frequent the implication chiefly of the nervous centers and their nerves, that the interest and importance of the disease (except for its pneumonic complications) have now largely centered in its nervous manifestations. In all these years abiding debility has been a frequent and special feature; but it has certainly been less general in the last two years than at first, although, on the other hand, more definite nervous affections have been even more common. The question has been raised whether these later manifestations of disease can properly be considered as being really sequelæ in the same sense that phthisis following influenza would be a sequela. Doubtless the influenza poison chiefly affects the nervous system and has been always present from the first; yet its primary effects have often differed greatly from those manifested at later periods, and, moreover, such later phenomena do not follow in a very large proportion of cases. Although, therefore, the word "sequela" may be theoretically inexact, yet, as after diphtheria, it does seem to express well the conditions frequently met with, especially where, as is often the case, a considerable interval of quiescence, or almost of health, has occurred. The word has the sanction, too, of many former eminent writers and observers. It is remarkable that these secondary nervous affections have now, as previously, borne no necessary relation to the severity of the primary attack. Dr. Copeland[1] uses the word "sequelæ," and he says that "the severity or danger of these had frequently no relation to the violence of the epidemic seizure, for the consequent affections were often most serious in persons who had experienced a comparatively mild attack of influenza, and as frequently slight in those who were severely attacked"; and the same statement might now be repeated.

It is a noticeable fact that in all these years the disease had subsided at the end of either the first or the second quarter, and has not reappeared in an epidemic form until the return of the cold weather in the ensuing December or January. Indeed, in 1892 the great stress of seizures was not felt until February, March and April, but it also ceased to be actively epidemic in the month of June. In the present year scattered cases have continued to occur until the present time, but there is no general prevalence, and there can be no doubt that thermometric or atmospheric conditions—favorable or unfavorable to the life and multiplication of the bacilli—have existed at these periods respectively.

Although this district, in common with England generally, has been almost entirely spared, the coincidence of the reappearance of Asiatic cholera in Europe during the last two years should not be overlooked in connection with this outbreak of influenza, corresponding as it does with what has been observed after other invasions of this disease.

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[1] Dictionary of Medicine, 1858.

During the last week of January, and the greater part of February of this year, a very extended special epidemic occurred, which was characterized by a considerable and marked *soreness of the throat*, with faucial redness and relaxation. There were also with this usually some catarrh of the eyes and nose, and some bronchial secretion. Debility and lassitude, both at the time and afterward, were also marked symptoms. In the latter part of February true influenza began to show itself in an epidemic form. The attacks of this disease were markedly contrasted with the catarrho-cynanchal seizures which had been so prevalent previously, and it is remarkable that these latter forms of illness disappeared almost suddenly at the time that true influenza reassumed its epidemic condition.

As in former years, the great majority of the cases of influenza were quite uncomplicated; but on the other hand a considerable proportion were accompanied or followed by active complications or by sequelæ. Pneumonia, as in all the years, has been the most common complication as well as the most fatal. There is no doubt that it has often been induced by want of due care or by undue exposure during an attack of simple influenza.[2] Though somewhat less frequent this year than previously, yet in three or four districts of Norfolk it has prevailed largely and quite endemically. One country medical practitioner reported that he must have had in his district at least 100 cases of pneumonia during this Spring; another stated that he had had more than sixty cases; and another said that a large proportion of the children in the Union house, to which he was attached as medical attendant, had suffered from pulmonary inflammation.

Pleurisy and pericarditis have this year been comparatively rare. Phlebitis, usually of the femoral vein, has occurred occasionally. Albuminuria of varying duration would appear to have been increasingly frequent, and readily recurred during convalescence through imprudence or exposure. Fluxes, such as diarrhœa and vomiting, have often been severe. Catarrh of the bladder has been very occasionally met with. Delirium, mental confusion and attacks of acute mania have been by no means rare; while acute or subacute cerebral and spinal meningitis have been not uncommon.

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[2] My own attack of influenzal pneumonia last year was distinctly induced by such exposure, when I was otherwise comparatively slightly ailing: and the lamented deaths of two healthy and most respected medical practitioners of this district in the Spring of this year from pneumonia were clearly traceable to their courageous ignoring of their own needs in their steady devotion to their duties and the proper care of those patients who were under their charge.

The temperature of affected persons has shown some curious variations. As a rule it has after the first three or four days become normal or subnormal; but a few cases have occurred in which, without evident cause, an increased range of the thermometer has continued for three or four weeks, or even more; and in one case it was noticed that the morning temperature was for a time from one and a half to two degrees higher than that of the evening. In some others, where it was persistently high, there was a morning remission of two or three degrees, giving rise to the suspicion of an attack of typhoid fever being impending.

Of later or secondary affections, a varying amount of loss of taste or smell has been very frequently noted; and in connection with this I may mention a marked and prolonged desquamation of the mucous membrane of the soft palate which was observed in one case, in which there was also distinct peeling of the skin of the feet. The vesicular eruption on the fauces, described by Dr. Shelly[3] as being extremely common in influenza, has not been quite so constantly observed by myself, though undoubtedly often present. and in some cases even diagnostic. One of the most frequent and remarkable neuroses observed with or without general neurasthenia or weakness of the limbs has been a peculiar chronic affection of portions of the spinal column, in the form of persistent tenderness of some of the vertebræ, most commonly of the cervical and dorsal regions. Presumably the poison of the disease had especially affected these particular localities, and the resulting asthenic congestion of the cord or its membranes was very slow to disappear, although the patients as a rule eventually recovered. A few cases, however, have been met with where the patients did not so recover, but the disease went on to produce greater limb weakness or even abiding partial paraplegia. This unfavorable result appeared to have occurred where an attack of influenza in a second year accentuated or increased a spinal weakness already existing from a former seizure. In these cases the lower cervical spines and the fourth or fifth dorsal vertebræ were the most common seats of this abiding tenderness, and it was observed not infrequently that two or more regions of the spinal column would be thus affected, with distinct intervals of normal spine between them. In these cases, too, there has usually been a certain amount of fixed pain in some portion of the sternal region, corresponding with the peripheral termination of the nerves arising from these particular parts. The spinal pain was usually accompanied by marked tenderness on pressure, and by some hyperæsthesia of the adjacent skin, and the whole condition has sometimes borne a striking resemblance to that seen in cases of spinal hysteria ; but the age and sex of many of the patients, as well as other circumstances, quite negatived the idea of its being due to such a neurosis.

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[3] Brit. Med. Jour., vol. i., 1893, p. 791.

As a proof of changing type, it is worthy of notice how much less alcoholic stimulants have been required, or even borne, in the last two years than previously. At first it often appeared that champagne or brandy could be taken, and with advantage, in almost any quantity ; but recently it has been a common complaint of patients that all forms of such stimulant have produced flushings or headaches or general discomfort.

Public institutions have, as a rule, been but little affected this year, so far as patients or general inmates are concerned, but the officers and servants have in some case suffered to a certain extent. In a few districts, however, the public schools have suffered more extensively.

Upon the whole, the disease may now be considered to have lost much of its initial intensity and it is probably dying out. This may be due to changing seasons or possibly to a partial protective influence upon the population exerted by previous attacks or by previous exposure and acclimatization ; but this protection has been clearly shown to have been only partial both as regards individuals and communities.—*Lancet.*

A STUDY OF THE INFLUENCE OF CHLOROFORM UPON THE RESPIRATION AND CIRCULATION.[1]

By H. A. HARE, M.D., Professor of Therapeutics in the Jefferson Medical College, and E. Q. THORNTON, M.D., Demonstrator of Therapeutics, Jefferson Medical College.

To any one who endeavors to view the subject of chloroform anæsthesia in an entirely impartial light, two objects raise themselves so high above all others that they form the peaks about which the smaller questions must cluster. The first object on which the judicial eye rests is the firm belief of many clinicians that chloroform may cause sudden cardiac death : the second object to be seen is the statement of the Hyderabad Chloroform Commissions that death from chloroform is never due to cardiac failure. In support of the first belief there exist not only wide clinical observation but also the experimental evidences of a number of investigators. In support of the second statement there is an array of experimental study not equalled by any other research extant, associated with an enormous number of negative observations on man—negative observations because Surgeon-Lieutenant-Colonel Lawrie alone has in 25,000 cases never had a cardiac death.

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[1] London *Lancet.*

The controversy concerning the action of chloroform upon the animal organism has been waged so incessantly for many years and has led to such extraordinary efforts for its elucidation and final decision that anyone who attempts to take part in it finds himself swamped by the number of statements and opinions which he is forced to regard. We have therefore approached this research feeling that it was no ordinary task and that a path already so well traveled must be gone over with the utmost care if anything new or of value is to be discovered. In March, 1892, Surgeon-Lieutenant-Colonel Lawrie, whose interest in this subject is recognized by the medical profession all over the world, wrote to one of us (Dr. Hare) asking that another chloroform research be instituted for which the Government of His Highness the Nizam of Hyderabad would pay. The express object of the research was the reconciliation of at least some of the contradictory conclusions reached by various experimenters during the past few years. From the immense number of observations in regard to the action of chloroform in the laboratory and in the operating room it is evident that sufficient data are at hand to give us material to reach positive conclusions and that the contradictory results hitherto obtained must have been reached by misinterpretation and error in experimental method, tinctured perhaps by opinions formed previously to the completion of a line of study. There are certain facts in regard to chloroform which few will deny, the chief of which are that it has the advantage of rapid action without disagreeable preliminary or subsequent symptoms, that its bulk is small and its odor agreeable, but more important than all, that it is much more dangerous than ether. Though the Hyderabad Commission in their preliminary conclusions (page 30, paragraph 43) assert that ether is as dangerous as chloroform if given sufficiently to produce true anæsthesia, we believe that the safety of ether is so universally recognized that this conclusion of the Commission can only be excused by the supposition that ether has probably been used as little by those who wrote the paragraph as chloroform is used in many parts of America. This possibility is made a probability when it is read that "if surgeons choose to be content with a condition of semi-anæsthesia it can no doubt be produced with perfect safety, though with discomfort to the patient, by ether held rather closely over the mouth. Such a condition of imperfect anæsthesia would never be accepted by any surgeon accustomed to operate under chloroform." That this statement shows, to put it mildly, that the writer knows not whereof he speaks, is proved by the universal employment of ether by hundreds of the best surgeons all over the world in preference to chloroform. Further than this, medical literature contains so many statistical papers showing the small percentage of deaths from ether as compared to chloroform that the point need not be further discussed.

There are certain other points in regard to the action of chloroform which may be set aside as settled and therefore not needing further study, being generally received as beyond criticism, and we have made no experiments looking to their reproduction, but we have devoted our efforts solely to the question over which discussion still proceeds. Thus all investigators concur in the statement that chloroform, even in ordinary therapeutic quantity, acts as a powerful and constant depressant to arterial pressure. This conclusion has been reached by Bowditch and Minot and Coats, H. C. Wood and H. A. Hare, Gaskell and Shore, by the First and Second Hyderabad Chloroform Commissions, and by every experiment in the research now carried out which forms this report. There is no evidence to the contrary, and practically it has never been denied. Gaskell and Shore state, however, that chloroform may cause anæsthesia without lowering blood pressure, and that it causes primarily a rise of pressure. They also believe that the chief cause in the fall of arterial pressure is cardiac and not vaso-motor depression. The rise we have never seen, except from struggles, and we have never been able to produce anæsthesia without lowering the blood pressure, even when the drug was used in the smallest quantity capable of causing anæsthesia and given as slowly as possible. We agree with the statement of the Hyderabad Commission that a fall of blood pressure always occurs when chloroform anæsthesia is produced. We are also forced, as the result of our studies, to differ entirely from Gaskell and Shore in their statement that the fall of arterial pressure is due primarily to a weakening of the heart's action and not to paralysis (depression?) of the vaso-motor center. We believe that both factors cause the fall, but that the dominant factor is vaso-motor depression, because, as may be seen in several of our tracings, the pulse waves were quite strong, though the blood pressure, through vaso-motor relaxation, was absolutely to the abscissa line; and we agree with Surgeon-Lieutenant-Colonel Lawrie when he says that no conclusions as to the action of chloroform when inhaled can be drawn from the injection experiments of Gaskell and Shore into the arteries. One of our reasons for this belief is the entire difference in result. Another reason is that any powerful drug injected into the brain will cause a rise of blood pressure. Even nitrite of amyl, the prince of vaso-motor paralysants, will do this. (See Gaskell and Shore, p. 17.) We also believe that results obtained by such interesting methods of experiment as those employed by Gaskell and Shore are not capable of giving us positively reliable information, as the conditions are utterly at variance with those in which chloroform is given to man, and, further, the methods are such as to leave room for fallacious results in spite of the greatest caution on the part of these highly skilled experimenters. Secondly, it is not denied, by anyone that we know of, that chloroform exerts a powerful depressant and paralysant action on the respiratory center. This is agreed to by clinicians and by everyone who has experimentally studied the action of the drug on the lower animals—witness the results of the collective investigation. Thirdly, it is universally conceded that chloroform is a lethal agent of great power when brought into direct contact with highly vitalized tissues. Apart from these facts there are a number of others in which we find ourselves strictly in accord with the conclusions of the First and Second Hyderabad Commissions. We find that insensibility comes first, then respiratory failure, and finally arrest in every case in the lower animals—in other words, that cardiac arrest never ensues primarily from the inhalation of chloroform. In reaching this conclusion one of us (Dr. Hare) is well aware that his position is directly opposed to his conclusions published in a joint paper by H. C. Wood and himself in the *Medical News* of Feb. 22, 1890. The tracings shown in that paper to prove that chloroform was capable of causing primary arrest of the heart are all (except No. 5) those of experiments in which chloroform was *injected directly into the jugular vein*, which is an entirely different thing from its absorption from the lungs into the blood well mixed with air. Even quinine injected into the jugular vein will cause cardiac arrest.

Further than this, this research has shown us that in only one of the three tracings presented by Wood and Hare did death *certainly* occur from cardiac failure, even when the drug was given intravenously—namely, in No. 4. Perhaps, if artificial respiration had been resorted to, recovery would have occurred, as our experiments have proved that it is feasible even after both the heart and respiration have apparently stopped. The pulse-line in tracing No. 3 (Wood and Hare) is more than reproduced by jugular injection in No. 14 of our research, and No. 5 (Wood and Hare) by inhalation in No. 23 (Parts 15 and 16) of this research, and it will be noted that, though the heart failed in these experiments to make a pulse-mark for the time being, it eventually recovered sufficiently to do so, or was found beating when the chestwall was opened or a needle was thrust into the heart. Again in Experiment 13 of our research, it is seen that when the pen was practically at the abscissa it suddenly rose again. The heart was in all these experiments very weak, but it recovered rapidly from its weakness, so that we must conclude that the cardiac condition was one of debility or depression and not of paralysis or death.

We find also, as did the Commission, that if the chloroform is stopped early in its use the pressure rapidly rises again, and if the respiration has ceased this often spontaneously returns or can be renewed by artificial respiration. On the other hand, if the chloroform has been given in excess, neither of these results takes place and death may ensue, whatever be done. Of course struggling always disturbs the blood pressure, and because of the greater respiratory efforts of the animal more chloroform is inhaled and more danger is present. In regard to the changes of the pulse tracing under chloroform we believe that vagal irritation produced by chloroform may exercise a very positive influence upon the circulation; but we find that the chief causes for the variations that occur are to be found in the vaso-motor apparatus. At the same time we are convinced that practically this vagal influence may be harmful, thereby differing from the Commission, which thinks that it is an element of safety. Thus we believe that true fatty heart, *plus* ventricular engorgement, *plus* vagal irritation, *plus* possible valvular disease, and, finally, *plus* extreme vasomotor relaxation may result in frightened persons in death. While this is not, scientifically speaking, a cardiac death from chloroform, practically the chloroform is the last straw which upsets the cardiac balance. However, Surgeon-Lieutenant-Colonel Lawrie and his colleagues recognize this as well as ourselves. (See paragraph 38.) In paragraphs 15, 16, 17, 18 and 19 of the Commission's conclusions it is pointed out that the action of the vagus can never be sufficient to absolutely and permanently inhibit the heart. We of course agree to this, as must everyone who knows anything of experimental physiology, and one of us has already published, with Wood, our belief in this fact, for we stated in the *Medical News* of Feb. 22, 1889: "The theory has from time to time found advocates that the vapors of chloroform may, by irritating the larynx and adjacent parts, cause arrest of the heart through a reflex inhibition. To test the possibility of this we have made a number of experiments. When the tracheal cannula is tied tightly into the trachea some distance below the larynx it is evident that the latter organ is isolated from the general respiratory tract and that chloroform injected into it will exert only a local influence. In all the experiments which we have made in the way just indicated the injection has been followed by an immediate and very pronounced primary fall of the pressure, followed after a very brief interval by a rise which usually reaches decidedly above the normal. As an example of one of these experiments, we give the preceding tracing. The primary fall of arterial pressure, which has just been spoken of, can scarcely be produced except by reflex inhibition of the heart or of the vaso-motor centers, while the secondary rise is probably the result of a reflex vaso-motor spasm. In order to throw light upon this question we have made experiments by injecting chloroform into the larynx after division of the pneumo-gastric nerves, the trachea being ligated so as to prevent the entrance of the anæsthetic into the lungs. In making practical application of the experiment just discussed it must be noted that in no case have we succeeded in completely arresting the heart's action by injecting chloroform into the larynx, and as the chloroform was injected in liquid form it is plain that the irritation was more intense than could be produced by the mere vapors of the anæsthetic, however concentrated; therefore, while it must be considered that it is possible for a reflex inhibitory arrest of the heart to occur during the inhalation, such an accident is extremely improbable, and we consider it practically certain that a heart so arrested could, a few seconds later, escaping from the inhibitory control recommence its beat. It certainly has never been proven that chloroform can cause in the human subject permanent reflex inhibitory cardiac arrest, and as our experiments upon the dog have failed to cause such arrest, we consider it very improbable that (reflex) cardiac arrest is ever produced in man by chloroform." To this we wish to add: unless the cardiac disease or condition is such as to be unable to withstand any shock whatever.

With the statement in paragraph 20 of the report of the Commission that chloroform injected into the jugular vein has not a paralysant effect on the heart, but an influence similar to that produced by inhalation, we have to entirely disagree, and we cannot understand how results so completely at variance with our own and with those of Wood and Hare could have been arrived at. The tracings we present do not admit of wrong interpretation. Perhaps the difference lies in the fact that in our studies enough water was added to the chloroform to carry it *en masse* to the heart, whereas in the East Indian studies the pure, undiluted drug was injected, had not sufficient volume to reach the heart, and was gradually volatilized in the vein, and so produced a gradual effect. We find that the injection of from 2 to

4 c. c. of chloroform into the jugular vein causes arrest of respiration, rapidly followed by cardiac arrest, which is not secondary to the respiratory failure but to a primary action of the chloroform on the heart muscle, which is non-responsive to stimulation. We have made this experiment over a hundred times. It has been denied that chloroform when injected into the jugular vein causes cardiac depression, and the recent experiments of Leaf and his colleagues in Hyderabad have been cited to support this view. In these researches they found when chloroform was given in excessive amount, the pen falling to the abscissa line and failing to record a pulse wave, that a needle in the heart muscle continued to beat for many seconds. While at first glance these results, which we have also obtained, seem to prove that the cardiac arrest is only apparent and not real, they have been actually given an importance far in excess of their value. We have proved again and again that the movement of the needle may be due, not to a true cardiac contraction, but to incoördinate contraction of one of the ventricles and to contractile movements of bands of the cardiac muscle, which movements are very often rhythmical enough to make the needle beat regularly. We have found this needle movement taking place even after an injection of chloroform had been sent directly into the heart through the chest wall, and in a heart the muscle of which failed to respond to any strength of faradaic irritation except in those parts which had not come into contact with the poison. Further than this, if an animal is given very large doses of chloroform intravenously or by direct intra-cardiac injection, respiration invariably ceases if the amount is large enough; and if the chest is opened one condition will be constantly found—viz., the heart will be so widely dilated as to completely fill the pericardium almost to bursting, and the cavities, particularly the ventricles, will be engorged with blood. Although they may still be feebly contracting, the contraction is abortive and fails to cause arterial flow. If the drug has been used intravenously by the jugular vein, the blood in the right and left heart will be found to be red if death has come on rapidly; if not, it will be dark and venous. The lungs will be found to be of that peculiar pink hue due to altered blood. If the injection has been cardiac it will be found that the ventricle with which the poison has come into contact has become paralysed, while the other is making fairly good efforts at work. When the injection takes place into the right ventricle, so that the poison passes to the left cavity, both ventricles fail to act voluntarily or to faradaism. Chloroform is capable, therefore, of causing death of the cardiac muscle whenever it comes into contact with it, and that there is no possibility of this arrest being due to vagal irritation is

proved by experiments in which vagal section preceded the use of the chloroform.

Concerning the influence of other drugs upon the effects of chloroform we also differ from the conclusion of the Commission that no marked influence is felt. We have found atropine to very decidedly postpone circulatory depression due to chloroform.

Summary.—From a careful study of the experiments so far reported, from studies made by one of us some two years ago with H. C. Wood, and finally from this careful series of experiments, we believe that the subject can be settled by the acceptance of both views in a modified form, or, in other words, that there is no real antagonism in the belief that chloroform kills by depression of the respiration or paralysis of the heart. We very positively assert that chloroform practically always kills by failure of respiration when administered by inhalation, provided—and this provision is most important—that the heart of the anæsthetized person is healthy and has not been rendered functionally incompetent by fright or violent struggles, or again, by marked asphyxia. By a healthy heart we mean one which has not undergone true fatty degeneration or has not so severe a valvular lesion as to make the slightest variation in the even tenor of the circulation fatal. As positively as we assert that chloroform kills primarily by respiratory failure, so do we also assert that in excessive dose by inhalation it has a depressant effect on the circulation, which is chiefly due to centric vaso-motor depression with final depression of the cardiac muscle itself. Depression of the cardiac muscle alone is never great enough to cause death when the chloroform is given by inhalation ; but we believe that gradual asphyxia, with the direct depression of the circulation, may do much toward producing a fatal result, for vaso-motor integrity is almost as necessary to life as an intact cardiac mechanism. This circulatory depression has been considered a safeguard because it was supposed to prevent chloroform from going to the vital centers ; but in reality it is no safeguard, because profound circulatory depression is as great an evil as respiratory narcosis. That the circulatory depression may be dangerous is not only evident, but it is stated to be so by the Hyderabad Commission itself at the end of paragraph 8 of their report. This circulatory depression may be so profound that recovery is impossible, even with the most thorough artificial respiration, a fact stated by the Second Hyderabad Commission in paragraph 25, which we quote in this paper. This emphasizes the fact that we cannot afford to totally ignore the effect of chloroform on the circulation, and we cannot consider the patient to be in danger of circulatory failure only when the respiration ceases, but as soon as it becomes abnormal. On the other hand, it should be remembered that even if chloroform has been given properly the arterial pressure may be so low as to cause no pulse in the radial artery, and yet the circulatory system may be ready to respond at once when the drug is removed. If, therefore, the chloroform is properly administered, is there danger of its circulatory effect in man? We think that it is just at this point that our research, and every other research on animals fails, and necessarily fails, to produce a positive reply. The variation in the action of a drug on a diseased individual from its effect on the normal one is notorious, and we have no right to dogmatically assert that there is absolutely no danger of circulatory depression in man, even if no evidence of failure were found in dogs, because there may be many idiosyncrasies or variations through disease in the human being, which may completely reverse the results of experiments on healthy animals. In other words, supposing that the amount of depression from very full doses of chloroform equals twenty-five units, this amounts to little in the normal heart, but if the heart is depressed twenty-five additional units by disease the depression of fifty units may be fatal, particularly if to this fifty are added twenty-five units more of depression from fright and cardiac engorgement through disordered respiration or struggling. That true depression of the heart muscle may take place under chloroform seems to us to be most undoubted, and we think that the tracings in every research that we have seen support this view. There is always a decrease in cardiac power manifested by the decrease in the force of the individual pulse beat, and this passes away only if chloroform is removed early enough. We also agree with McWilliam that from the very first inhalation of chloroform there is a constant tendency to cardiac dilatation.

We come finally to the all-important questions: 1. Is chloroform a safe anæsthetic? 2. Are we to watch the pulse or respiration during the use of the drug, and what are the signs in the respiratory function indicative of danger to the patient? 3 What is the true cause of death from chloroform? 4 Is death from chloroform possible when it is properly administered? 5. Under what circumstances is the surgeon to use chloroform in preference to the less dangerous anæsthetic, ether? 6. Which is the best way of administering chloroform? To the first question the answer is: Yes, in the majority of cases, provided that it is given by one who is skilled in its use and who not only knows how to give it but how to detect signs of danger. It is not as safe as ether at any time, other things being equal, and never so in the hands of a tyro. To the second question the answer is:

Watch the respiration, because as soon as enough chloroform is used to endanger the circulation the respiration will show some signs of abnormality either in depth, shallowness, or irregularity—in other words, the very effect of the drug may be to cause such deep and rapid respiration that an excessive quantity of it is taken into the lungs and continues to be absorbed even after the inhaler is withdrawn. As there is always a fall in pressure under chloroform, it is difficult to feel the radial or temporal pulse, and the respiratory center recognizes the degree of arterial depression which its sister, the vaso-motor center, has permitted by finding that its blood-supply is insufficient. As respiration fails first it should be watched first. Finally, it is only by watching the respiration that it can be ascertained how much chloroform the patient is receiving. This function is not watched for danger alone, but to indicate the dose. The answer to the third question is that death is always due in the healthy animal to respiratory failure accompanied by circulatory depression, which latter may be severe enough to cause death, even if artificial respiration is used skilfully. Death only occurs in the healthy animal when chloroform is given in excessive quantities. The fourth question is impossible to answer as regards man from the basis of experimentation, as identically diseased states in animals with those developed under various conditions in man cannot be produced. The physician having a case of heart disease should always advise the patient of the danger of any anæsthetic, and he should remember, whether it is wise to tell the patient so or not, that anæsthesia always means a step toward death even in the healthiest of men. In the event of a death under chloroform the physician is not to blame if he has taken proper preliminary precautions and has given the chloroform properly. Everyone is agreed that the patient taking that drug should have plenty of fresh air, and in India it is understood that to all intents and purposes patients are operated on in the open air, at least as compared to the closed rooms necessary in America and Europe. This free supply of air is important whether death is believed to be imminent from cardiac or from respiratory failure, but such a supply matters little to the patient if he does not breath freely, nor does the dose of chloroform amount to anything if it is not drawn into the chest. The dose of the drug is not the amount on the inhaler but that taken into the chest, and finally, the amount absorbed by the blood-vessels. The rapidity and depth of respiratory movements are therefore, as Surgeon-Lieutenant-Colonel Lawrie asserts, the entire key to the situation. A windmill over a well is watched to see whether it is pumping into a reservoir a given quantity of water. If the windmill works irregularly, so that it is known that its pumping action is deranged, it is separated from the pump until the wind blows steadily in order that it may pump regularly. Similarly chloroform is withdrawn, as Surgeon-Lieutenant-Colonel Lawrie says, whenever respiration becomes disturbed in rhythm or when struggling disturbs it, because it is the first indication that the drug's action is uncertain, and because there is no telling the dose which is absorbed. While watching the respiration will not warn of a sudden cardiac arrest in fatty heart *plus* chloroform depression, neither will the pulse give such warning, and we are confident that the statement of the Hyderabad Commission that the *respiration should be watched* is correct, for we believe, from a long series of observations, that gradual cardiac failure never occurs without producing respiratory changes from the very first. In other words, we do not believe that chloroform can cause serious disorder in a healthy heart without, as a result of beginning disorder, disturbing the respiration ; and, secondly, that in a healthy heart a quantity of chloroform sufficient to disorder it will by its direct action disorder the respiration. If, as an extra precaution, one assistant watches the pulse while the other watches the respiration, very well ; for, though the respiration is the more important function to watch, the man watching the pulse might discover an irregularity which the anæsthetist might not see reproduced in the respiratory action ; but, as divided attention generally means a slighting of both objects in view, Surgeon-Lieutenant-Colonel Lawrie is right in insisting on the pulse being let alone.

In answer to the fifth question we have several points to offer: 1. Hot climates, where ether is inapplicable and where a free circulation of air increases the safety of the patient. 2. Chloroform may be used whenever a large number of persons are to be rapidly anæsthetised, so that the surgeon may pass on to others and save a majority of lives, even if the drug endangers a few, as on the battlefield, when only a small bulk of anæsthetics can be carried. 3. Its employment is indicated in cases of Bright's disease requiring the surgeon's attention owing to the fact that anæsthesia may be obtained with so little chloroform that the kidneys are not irritated, whereas ether, because of the large quantity necessarily used, would irritate those organs. Quantity for quantity, ether is, of course, the less irritating of the two. 4. In cases of aneurysm or great atheroma of the blood-vessels, where the shock of an operation without anæsthesia would be a greater danger than the use of an anæsthetic, chloroform is to be employed, since the greater struggles caused by ether and the stimulating effect which it has on the circulation and blood-pressure might cause vascular rupture. 5. In children or adults who already have bronchitis, or who are known to bear ether badly, or, in other words, have an idiosyncrasy to that drug, chloroform may be employed. 6. Persons who struggle violently, and who are robust and strong, are in greater danger from the use of chloroform than the sickly and weak, probably because the struggles strain the heart and tend to dilate its walls.

The safest method of administration is by Lawrie's or Esmarch's inhaler because these provide free circulation of air and do not distract the attention of the anæsthetist from the respiratory movement by complicated apparatus. An apparatus much like these, in allowing a free amount of air, is the Hyderabad chloroform inhaler, or open-ended cone with Messrs. Krohne and Sesemann's respiration indicator attachment. The Junker inhaler, even with its modifications, is too complicated and cumbersome, and while less chloroform is wasted in administering the drug it must be thrown out of the bottle afterward. If used at all it should be used with the increased air-supply and respiration indicator of Messrs. Krohne and Sesemann. We agree so heartily with Surgeon-Lieutenant-Colonel Lawrie's conclusions that we give them here: 1. The chloroform should be given on absorbent cotton stitched in an open cone or cap (a depression made through the opening in the inside flannel bag will answer as well). 2. To insure regular breathing the patient lying down with everything loose about the neck, heart, and abdomen, should be made to blow into the cone held at a little distance from the face. The right distance throughout the inhalation is the nearest which does not cause struggling or choking or holding of the breath. Provided that no choking or holding of the breath occurs, the cap should gradually be brought nearer to, and eventually may be held close over, the mouth and nose as insensibility deepens. 3. The administrator's sole object while producing anæsthesia is to keep the breathing regular. As long as the breathing is regular and the patient is not compelled to gasp in chloroform at an abnormal rate there is absolutely no danger whatever in pushing the anæsthetic till full anæsthesia is produced. 4. Irregularity of the breathing is generally caused by insufficient air, which makes the patient struggle or choke or hold his breath. There is little or no tendency to either of these untoward events if sufficient air is given with the chloroform. If they do occur the cap must be removed and the patient must be allowed to take a breath of fresh air before the administration is proceeded with. 5. Full anæsthesia is estimated by insensitiveness of the cornea. It is also indicated by stertorous breathing or by complete relaxation of the muscles. Directly the cornea becomes insensitive or the breathing becomes stertorous the inhalation should be stopped. The breathing may become stertorous while the cornea is still sensitive. The rule to stop the inhalation should notwithstanding be rigidly enforced, and it will be found that the cornea always becomes insensitive within a few seconds afterward. It is only necessary to add that the patient should be so dressed for an operation that his respiratory movements can be easily seen by the chloroformist. In the climate of India this is not difficult to manage, but it is rather more so in that of Europe; so that in this respect, and in this alone, the chloroformist in England is placed at a distinct disadvantage compared with the chloroformist in India.

Note.—Since writing this report two important papers upon this subject have appeared: one is by Drs. Gaskell and Shore, in which they carried out a line of ingenious cross-circulation experiments, and from which they conclude that the fall in blood pressure seen under chloroform is due to cardiac rather than vaso-motor depression; and the other is a communication from Surgeon-Lieutenant-Colonel Lawrie in *The Lancet* of Feb. 11, 1893, in which he refutes the statements made by Drs. Gaskell and Shore and details experiments which, he believes, combat those of the two investigators just named. We cannot help believing that cross-circulation experiments with regard to the action of chloroform must be received with considerable doubt by the practicing physician. Even if such work is carried out with the greatest skill the opportunities for error are innumerable, and, while results are obtained which, if in accord with other studies, might be accepted as confirmatory, the fact that they differ makes their negative conclusion of little value. The object of the investigator of the action of chloroform is to perform experiments which, as far as possible will be counterparts of the employment of the drug for human beings. To the physiologist it is important to study a drug in order that results may be obtained, whether they have a practical bearing or not; but the practicing physician only wishes for those points which should guide him in the administration of the remedy. The concluding paragraph of Surgeon-Lieutenant-Colonel Lawrie's latest contribution to the subject states the facts so clearly, and is so in accord with what we have tried to set forth in our own report, that we cannot do better than quote the paragraph: "The Hyderabad Commission's work proves that, while Syme's principles are right, there is no such thing as a safe method of chloroform administration. It is no longer a question of the superiority of the London method or of the Edinburgh method; absolute safety can be attained neither by watching the respiration nor the pulse for signs of danger, which are in either case proof of improper administration or of overdosing. Moreover, overdosing may take place whether the anaesthetic is given on lint or on a towel, or on a cap such as we use, or with Junker's or Skinner's, or any other form of apparatus. The all-important point is that the breathing shall never be interfered with in any way. Safety under chloroform can unquestionably be insured, but it can only be so by attending to regular, natural breathing; and, whatever method is employed, no one can deny that it is the bounden duty of the chloroformist to maintain natural breathing throughout the whole period of administration. To maintain natural breathing requires careful training and considerable experience, but if these conditions be fulfilled it is impossible to produce anything with chloroform but anaesthesia; and the Hyderabad Commission has shown that anaesthesia can be safely produced by chloroform, provided the drug is not pushed too far and that the patient is in ordinary health.

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PROCEEDINGS OF SOCIETIES.

THE SOCIETY OF THE ALUMNI OF CHARITY HOSPITAL.

STATED MEETING, Oct. 4, 1893. WALTER LESTER CARR, M D., President, in the Chair.

Nasal Polypi.—Dr. A. Rupp presented a number of polypi which had been removed from a man's nose. The case was interesting on account of the large number of polypi and the severe symptoms that were present. When the patient was twelve years of age, an attempt was made in Stuttgart to remove the polypi with ordinary forceps, but without success. The man has been in this country twenty years, and had suffered from a dozen reflex troubles, all of which originated in the diseased condition of the nose. The bridge of the nose was widened and much swollen, and the nasal obstruction was so great that he could hardly breathe. His eyes "watered," and every now and then he had an attack of conjunctivitis. There were also attacks of aphonia and spasmodic asthma which for years prevented him from sleeping, except when he was drunk; he had dyspnœa on exertion and sometimes without exertion; he was troubled with deafness, severe headaches, insomnia, vertigo and neuralgia; and, quite recently, he had had attacks of an epileptic nature. The patient was melancholic, and at times excitable.

The growths were not all removed at one sitting. Bosworth's modification of Jarvis's snare was used, as he preferred it to the electro-cautery snare. The operation resulted in a complete cessation of all the symptoms, and the patient felt, as he expressed it, "like a new man."

Discussion.—Dr. A. T. Muzzy said he had a somewhat similar case, occurring in a Scotch woman whose nose was full of polypi. He wished to ask if there were much bleeding during the operation. He inquired about symptoms due to eye disease.

Dr. Rupp answered that there was only very moderate hemorrhage. Where there are so many polypi, they are usually removed in fragments. In his case there was no trouble with the optic nerve, nor any retinal changes.

Dr. Walter B. Johnson said he did not think there was any intimate connection between diseases of the nose and eyes, although, of course, there could be no question about the extension of diseases of the nose to the ocular conjunctiva. He had never seen any cases of disease of the retina or of the optic nerve that he had any reason to believe were connected in any way with nasal polypi, nasal stenosis, or other forms of nasal disease. He had seen nasal polypi quite as large as those shown, but had never known so many to be removed from one nose. He agreed with Dr. Rupp that the operation was not attended with much hemorrhage unless the nasal mucous membranes were much lacerated. He asked if the epileptic attacks which the patient had had were cured by the removal of the polypi.

Dr. Rupp replied that he was not sure these attacks were really epileptic, but they came on irregularly, and began with spasm of the larynx, aphonia and asthma. The operation was done four weeks ago, and the patient had been much improved.

The president thought the epileptic complication was of special interest. He suggested that as dyspnœa and aphonia were associated with great congestion, this might explain the epileptic attacks, and that operating on the nose, and thus allowing a greater supply of oxygen to the blood might have effected a cure.

Typhoid Fever in Tenements.—Dr. William L. Stowell read a paper with this title. He propounded four questions for discussion, viz.:

(1) Is the irregular type more common than the classical type?
(2) How often does it occur in infancy?
(3) What is the danger of infection?
(4) What is the best treatment out of hospital?

Typhoid fever, so called because of its supposed likeness to typhus fever, an idea long ago abandoned, is better described by the name "enteric fever" which is its common designation in England. It is now known to be due to a specific bacillus, the *bacillus typhosus*, discovered by Eberth. The author had found that the irregular type was much more common than the classical one given in the books. He referred to notes of a series of cases which came under his observation at the Demilt Dispensary. Thirty-four of them were in children under fourteen years of age, and one patient was only one year old. He was inclined to think that it occurs in children, especially very young children, much more frequently than is generally supposed. It has been known to occur shortly after birth, and also *in utero*, where the mother has had the disease. In most of the cases, the diagnosis was made by autopsy.

With regard to the danger of infection, the author said it was interesting to see how this could be traced in tenement house districts. Three of the cases were in the same house, and several were in adjoining houses ; this, he thought, was due to the peculiar arrangement of the closets, and not to direct infection. Epidemics are rare in this city, but almost all practitioners see a few cases every Fall. He thought the danger of infection was not great, and that there would be none if proper care were exercised.

He had tabulated his cases, and found that about one-fifth of them were followed by other cases in the same house. He attributed this to the lack of ventilation in crowded tenement houses. The average duration of the disease in his cases was twenty-one days ; the longest lasted fifty-two days, but in this case there was re-infection or relapse.

Some of the cases presented interesting symptoms.—Case V. was first seen when delirious, and had been treated as insane. In one case, the temperature remained at 104 for two weeks. As antipyretics were found to depress the pulse, and the patient was not particularly restless, no further treatment directed against the fever was adopted. The eruption was present in ninety per cent. of the cases; in one, it was very profuse, even being on the extremities. Several of the cases were "walking cases," though against his advice. He believed that they should stay in bed from the first. The only fatal case was that of a boy who got out of bed while his mother was absent, and fell on the floor in collapse.

The treatment was expectant, the aim being to aid the functions rather than to turn them back. So long as high temperature did not lead to discomfort and delirium, no special efforts were made to reduce it. Any treatment which increases the patient's comfort, such as sponging with alcohol, is always proper. Acetenalid was given for restlessness, and intestinal antiseptics were also administered. Pilocarpine acted well in one case, that of a boy, twelve years old, whose temperature was high and the skin dry. He was very restless and screamed so as to disturb the neighbors, yet morphine and chloral were used without effect. Symptoms should be treated as they present themselves. The author preferred sponge baths to tub-baths when it is necessary to reduce the temperature. He presented cultures of the *bacillus typhosus*, first described by Eberth, and which are found in the liver, spleen and blood, as well as in the intestines

Discussion.—Dr. Rupp said that this paper was very interesting as it presented a very different picture of the disease from that usually given, and he thought this was because the observations were made in private practice, and not in hospitals, as is usually the case. He thought the disease occurred in children more often than was supposed, as there were many obstacles to successful diagnosis. It is almost impossible to trace many cases of infection. Three years ago he had treated a family in which three members were ill with the disease. He thought the disease was more apt to spread in tenement houses because the people who live in them are uncleanly about their persons, and their quarters are small and badly ventilated. The treatment of the early stage is different from that of the later ones. In the later stages, it is very necessary to keep the patient quiet, and this is often hard to accomplish in tenement houses. He thought that death was generally due to acute degenerative changes in the heart He believed the treatment of typhoid fever should be symptomatic.

Dr. R. C. Newton said that he had had the misfortune to see an epidemic of typhoid fever during the Summer of 1882, while at an army post. Sixty cases occurred among the two hundred men in the garrison, and five died. More would have been saved if there had been better nursing. The accommodations were poor; the water used was from a spring belonging to the railway company, and it was fenced in and roofed over. The disease died out after they began boiling the water. He had nothing to suggest in the way of treatment, except the great value of sulphate of copper in pill form in checking the diarrhœa. He would try sponging or tub-baths where the temperature was 105°. While he was not prepared to discard disinfection of the intestines, he had tried it without much result. He gave quinine freely in these cases. He had never seen the classical type described in the text-books.

The speaker referred to one case where the eruption was very profuse, and to another where the patient acted like a crazy man. He thought that treatment was of but little avail in cases where the pulse was 130 at the outset, or where the pulse was dicrotic. He had had good results in restless patients from the administration of five grains of Dover's powder and five grains of phenacetine.

Dr. W. E. Cladeck had never seen a typical case of typhoid fever, nearly all coming under his observation in his practice in New Jersey having begun as intermittent fever. He had found benefit in using the rubber head-coil to reduce temperature.

The president said that the opinion seemed to be that the irregular type was most commonly met with, especially in this city. Sometimes we observe a modification of the disease, especially when it occurs in several members of one family, or in a number of persons in one house. Perhaps the disease loses a great deal of its positive character when it occurs in New York city, where the conditions are not favorable for its spread, except by neglect of sanitary rules; certain it is that many of the symptoms are lost.

With reference to the second question, there seemed to be no doubt that typhoid fever occurs in infants and young children much more frequently than was generally supposed. He thought the danger of infection was hard to guard against in crowded and badly ventilated tenement houses. In his opinion, the best treatment out of hospital is that laid down by the author of the paper. The patient must be kept in bed, and good nursing was of great importance. Milk diet should be the rule, and the therapeutic management should be symptomatic. The reduction of temperature by the use of baths was all very well with proper nursing; otherwise it is best to depend on sponging. Intestinal antisepsis is not as new as many think, for long ago it was the practice to give calomel, and some still employ this treatment. He advised the use of naphthol or salol, combined with quinine. Great care should be exercised in the use of antipyretics, especially those of the coal tar series, and he agreed with the author that it was best not to treat high temperature by drugs unless the temperature causes great restlessness.

Dr. D. P. Pease said that he had had a case of typhoid fever in which a well-known physician was called in consultation. Tub-baths were immediately ordered. Much against his will, the patient was given a cold bath in the consultant's presence. It had a peculiar effect, for the temperature at first was 103.5° F., yet after a bath of forty minutes the temperature was 105° F. Another bath was given the next day and with the same result, the temperature rising from 103° F. to 105.5° F. after a bath of twenty minutes. Then the wet sheet was substituted, but with the same result. The patient recovered, though the case was complicated with pneumonia.

Dr. Stowell, in closing the discussion, said that he was glad to emphasize what the president had said about antipyretics. High temperature is not such a great evil, after all, and if it does not produce unfavorable symptoms, why fight against it? Nursing is one of the chief elements of success. As to diet, boiled milk should be given with vichy or lime water; also beef extracts and beef-tea.

The president remarked that the use of ordinary beef-extract produces diarrhœa, if kept up for any length of time, especially when given in typhoid fever. Beef-juice is better, and it should be made by squeezing the broiled beef. Mutton broth is also good in some cases. Milk, however, should be the main reliance.

WALTER LESTER CARR, M.D., President, 6 East 58th street.
ALEXANDER LYLE, M.D., Secretary, 117 East 81st street.

TRI-STATE MEDICAL SOCIETY OF ALABAMA, GEORGIA, AND TENNESSEE.

Fifth Annual Meeting, held in Chattanooga, Tennessee, October 17, 18, and 19, 1893.

FIRST DAY—TUESDAY, OCTOBER 17, 1893.—MORNING SESSION.

Meeting called to order by President, Richard Douglas.

Prayer by Rev. John A. Stevens.

A new constitution was read by the secretary and made a special order for Thursday morning.

A paper by J. W. Russey, of Chattanooga, was read, entitled "Treatment of Puerperal Mastitis." Compression of more general utility than any simple measure, both prophylactic and curative. To be efficient for former purpose, must be used early after labor. The chest binder of Dr. Guiterras a most satisfactory means of applying pressure. If abscess forms pus, should be evacuated early and perfectly. Washing the abscess cavity preferable to drainage tubes. If drainage is necessary horse hair to be preferred to rubber tubing. Great care should be taken in selecting point for incision, if circumstances admit, on account of scar in cosmetic point of view.

W. G. Bogart said that mastitis could be prevented by proper prophylaxis. The breast is liable to injury by manipulation. He had found only one pump satisfactory by which the breast is steamed at the same time that the milk is drawn out. In the early stage try abortive treatment; if abscess threatens, poultice; later, incision, cleansing with peroxide of hydrogen and pack with iodoform gauze.

G. A. Baxter.—The chief point is the free exit of milk; preceding this the excessive secretion of milk produced by improper diet. The rdinary diet should be used—a liquid diet is especially improper.

As soon as there is any hardness of breasts annoint them with warm castor oil.

G. W. Drake believes in medical treatment, the internal administration of bichloride of mercury for the revulsive effect.

Richard Douglas called attention to the anatomy of the gland. Prof. Dugas is entitled to the credit of originating the only rational treatment—that by pressure. The cause is due to the presence of micrococci. The milk forms a favorable nidus for their development.

J. A. Goggans, Alexander City, Ala., read a paper entitled "Treatment of the Diseases of the Uterine Appendages," and presented specimen of ovaries.

These cases all come from pre-existing disease of the uterus, generally endometritis. The treatment of this condition was given: 1st. By local treatment. 2d. Amputation of the cervix. In all diseases of the uterine adnexa, rest and abstinence from sexual intercourse necessary. The three principal points of diagnosis in disease of the uterine adnexæ are: 1st. Repeated attacks of peritonitis. 2d. Repeated hemorrhages. 3d. Pain. Indications for operation: 1st. Those attending pelvic peritonitis, accompanied by tortuous and distended tubes, which may usually be felt in Douglas' pouch, behind the uterus. This condition may be preceded by the history and symptoms of an abortion, a gonorrhœa or a tubal pregnancy. 2d. The physical signs of enlarged and tender ovaries due to chronic abscess. 3d. The physical signs of prolapsed and tender ovaries, accompanied by irregular hemorrhages and incapacitating pains. 4th. Some few cases of dysmenorrhœa as the principal symptom, with a possibility of its being kept up by chronic disease of the ovaries and tubes. 5th. Where hemorrhage is the principal symptom, accompanied by the ordinary signs of grave pelvic disease. 6th. In a few cases of general peritonitis, preceded by the symptoms of rupture of a pre-existing pelvic abscess, ovarian abscess, pyosalpinx, or abscess in the appendages developed during the progress of puerperal septicæmia and just so long as endometritis existed, there could be no tendency on the part of the ovaries and tubes to recover. He distinguished endometritis clinically as simple gonorrhœal and septic. Treatment given was constitutional, generally followed by local treatment and especially tampons of 10 per cent. sol. ichthyol in boro-glycerine, either with or without previous dilatation. Said that this plan of treatment deserved serious consideration before such patients were subjected to the dangers of laparotomy.

Richard Douglas indorsed the position of the author as to the indications for operation, but each case must be decided on its own merits. Removal of appendages will not cure hemorrhage from the uterus, the proper treatment of which is divulsion of the cervix.

P. L. Brouillette was surprised that in the discussion of the subject, electricity had not been mentioned. In his experience many of these cases had been cured by the use of this agent, without curetting or removing the ovaries.

H. Berlin thought it a mistake to remove the uterine appendages for hemorrhage. Electricity applied with positive pole inside the womb will control hemorrhage by destroying the mucosa, if a strong current is used. It would be impossible for the woman to conceive after this.

Dr. Brouillette objected that the faradic current could not stop the hemorrhage.

Dr. Berlin said that his experience was only with the galvanic current which was generally used.

G. W. Drake said that most physicians had not been educated so as to use electricity intelligently. It might relieve hemorrhage by reflex action.

Dr. Brouillette thought that electricity should be tried before any operation was advised.

Dr. Goggans, in closing the discussion, said he was not in favor of removing the ovaries for mere symptoms—only for organic disease. Most of the general practitioners who use electricity fail to make a differential diagnosis. In the cases presented, the conditions show that no cure could have resulted from the use of electricity.

R. M. Harbin presented a case on which he had performed tracheotomy for membraneous croup.

AFTERNOON SESSION.

On motion, a vote of thanks was tendered Mrs. Coleman Duncan for a floral piece of Marechal Neil and La France roses presented the society.

R. M. Harbin, Calhoun, Ga., read a paper entitled : "Membraneous Croup, with Report of Cases Treated by Tracheotomy." Conclusions: 1. Membranous croup is almost invariably fatal without surgical treatment, and with medicinal treatment but little can be hoped for. 2. Any hope for an expectant plan of treatment is nil, and for the few cases that recover without surgical treatment don't demand a consideration. 3. Tracheotomy is a justifiable surgical procedure, and should be performed in all cases where our therapeutic resources have been exhausted and the patient is in danger of suffocation. In hopeless cases it affords a chance for recovery or promotes euthanasia.

4. Statistics would be better if infectious diseases were eliminated, as diphtheria, etc. 5. Tracheotomy keeps the patient alive until the pseudo membrane resolves into a muco-purulent liquid and is expectorated through the tube. 6. In all human certainty, the cases reported would have died without the operation. 7. The importance of after treatment in keeping tube moistened with lime water and the room at an equable temperature. 8. Tube should not be removed until purulent nature of sputa ceases, which is about eighth day. 9. A lack of instruments is no excuse for the non-performance of the operation, as a tube only is necessary in addition to general operating instruments.

J. R. Rathmell emphasized the uncertainty of the diagnosis between diphtheria and membraneous croup, and the almost certainty of death.

W. F. Westmoreland thought the paper valuable, as it called attention to the value of surgical interference. The surgeon was generally called too late. Tracheotomy, in itself, is not a dangerous operation. He had used cords, fastened in the edges of the wound and tied behind the neck, and thought this practice resulted more favorably than with the use of the tube.

H. B. Wilson, while in the Children's Hospital, N. Y., treated twenty-two cases of diphtheria, and all of these died except two, in which tracheotomy had been performed ; in another epidemic, out of forty cases, there were but few deaths.

Frank Trester Smith thought the operation of little danger. In the statistics, death is ascribed to the operation instead of the cause for which it was performed. Where tracheotomy was performed for foreign bodies, the statistics are good. The operation adds but little to the danger of the patient.

H. Berlin said that experiments on dogs in which croup had been artificially produced, showed that the effects of early operation were good. There was little danger from the operation itself.

G. A. Baxter read a paper entitled : "Treatment of the Omentum in Hernia Operations," in which he advocated the removal of the redundant omentum and reported a case in which a very large hernia consisting only of omentum was removed, weighing four pounds. The omentum was shown, also the patient.

J. R. Rathmell, of Chattanooga, read a paper entitled : "Serous and Watery Discharges during Gestation, their Source and Significance." The author believes that the profession has been mistaken in accepting the theory that these discharges were from the amniotic sac. Rupture of the sac is always followed by the expulsion of the fœtus. There are two other sources from which these discharges can come : 1st, from the cervix; 2d, from the decidua. Cases were related from the writer's observation illustrating all these sources.

NIGHT SESSION.

A paper was read by R. M. Cunningham, Birmingham, Ala., entitled: "Recent Observation of Croupous Pneumonia, with Special Reference to Prophylaxis and Treatment." This paper was largely statistical, based on an epidemic among the convicts at Pratt Mines.

SECOND DAY—WEDNESDAY, OCTOBER 18.—MORNING SESSION.

W. Frank Glenn, of Nashville, read a paper on the "Treatment of Septic Bubo." He treats the cause of gonorrhœa or chancroid, and makes direct applications to the glands. He advocates rest, the application of ice, the injection hypodermically of one per cent. solution of benzoate of mercury, and a compress bandage. When suppuration has taken place, free incision, etc. It would be best to exexcise the gland as soon as it becomes inflamed. After suppuration the case must be treated as a chancroid.

J. B. Murfree read a paper on the "Diagnosis and Pathology of Fractures near the Elbow Joint."

Fractures near the elbow joint are caused by external violence (direct or indirect, usually direct,) and muscular contractions rarely. Fractures near the elbow joint are diagnosed by the usual signs of fracture, to-wit: Loss of function, deformity, preternatural mobility and crepitation. All of these may not be present, and the diagnosis may be made by discovering the broken fragment in an abnormal position. The pathology is the abnormal relation of the bones of the forearm, solution of the continuity of the bone, formation of callus, excessive or at abnormal points, inflammation of the bone, occasionally necrosis, inflammation and suppuration of the soft tissues, resulting in hypertrophy and induration, pressure or laceration of the nerves and blood-vessels. As a result, the movements are impaired and the joint is stiff or awkward. Abscess sometimes results, and sometimes paralysis.

G. C. Savage, of Nashville, read a paper entitled: "Treatment of the Sequelæ of Purulent Inflammation of the Middle Ear," in which he advocated measures preventive of the sequelæ of inflammation of the middle ear, outlining his treatment: for the relief of pain, the free and frequent use of a solution of chloroform in olive oil, one drachm to seven, allowing the solution to remain in the ear ten minutes at a time; when there is a discharge, the use of a warm solution of peroxide of hydrogen, letting it remain in the ear until bubbling ceases, and repeating this as long as there is any bubbling. For mastoiditis he recommended, in addition to the above, Wilde's incision, and if this did not relieve, opening of the mastoid.

W. E. B. Davis, of Birmingham, Ala., read a paper entitled "The Treatment of Stone in the Biliary Ducts," in which he advocated, in cases where it was difficult to remove the calculi from the common duct without incising it, if it was very difficult to stitch up the duct, after making the incision, and if the patient's condition would not warrant a long operation, to introduce a glass tube and pack around it with iodoform gauze without attempting to repair the duct. These cases are usually in a bad condition to stand a prolonged operation.

Paul F. Eve, of Nashville, in a paper on "Cholecystotomy," advocated the removal of the calculi whenever detected, and described the operation.

W. C. Towns said that three cases where he had made the diagnosis of gall stones had been relieved by large doses of olive oil. If medicinal measures did not relieve, operation should be resorted to. He presented a patient on whom he had operated.

J. B. S. Holmes advocated operation if medicines failed to relieve. If the tube was occluded between the stone and intestine he would use Murphy's button to produce anastomosis between the duct and the intestine.

NIGHT SESSION.

Frank Trester Smith presented a case in which there had been "Prolapse of the Iris," which had been partially reduced by pushing it in with instruments and the reduction completed with the use of eserine.

J. W. Handly, of Nashville, read a paper on the "Treatment of Varicocele." The writer first speaks of the many methods and devices advanced by the medical profession in the treatment of varicocele, dividing the treatment into palliative and radical. Laid some stress upon the use of a well-fitting, properly adjusted suspensory as a most excellent palliative measure. In milder cases, besides the above, advises sound physiological advice as regards sexual habits and constipation. Mentions other palliative measures only to condemn them. Describes briefly earliest operations by Vidal de Cassis and Sir Astley Cooper, afterward giving at length the operations of Keyes and Bennett, the ones now generally practiced.

THIRD DAY.—THURSDAY, OCTOBER 19.—AFTERNOON SESSION.

Y. L. Abernathy, of Hill City, read a paper on the "Treatment of Typhoid Fever." The author claims that it is impossible to diagnose between typhoid and continued malarial fever in many cases. He believes in an aggressive form of treatment, and advocates the use of quinine and mercury in these cases. He also relies on hydrotherapy by the Brand method.

J. B. Cowan could not indorse the use of quinine. His sheet anchor is alcohol, using it as coal in a grate, to allow the man to burn this instead of burning the tissues. He gives salicylates in small doses—three and a half grains. He had not seen a case of typhoid fever in fifteen years.

G. T. Prince said that a typical case of typhoid was rarely seen. The treatment must be varied according to the type. In perforation, laparotomy should be performed. By using potass bromide first, he could use quinine.

Dr. Reeves, in discussing the paper, formulated typhoid fever as follows: An acute contagious febrile affection derived from an antecedent case of the disease and depending for its communication from person to person upon the presence of a specific micro-organism, which is believed to be of well-known morphological characteristics—a *bacillus*—and which can be cultivated outside the human body. The disease prevails less frequently in tropical and subtropical countries than in the temperate zone, is both endemic and epidemic in its visitations; attacks, preferably, young persons and those in middle life; is of long duration, but varying between ten and forty days *beyond* the *prodromic* period, which may cover from one to ten or even twelve days. There is profuse diarrhœa, or, at least, a relaxed state of the bowels, with "pea soup" or "ochre colored" stools; and at all stages a marked susceptibility to the action of laxative medicine; intestinal hemorrhage in many cases, and in a few perforation of the bowels; epistaxis, either slight or profuse; tympanites, with gurgling produced by pressure over the ileo cæcal valve; dullness of hearing, with mental hebetude, or morbid vigilance; headache, disappearing during the second week; delirium either mild or violent, with *subsultus tendinum*; rose-colored lenticular eruption during the second week, coming out in crops and disappearing in the same order; fever-curve showing steady elevation of from one to three degrees in the evening with a fall of the same number of degrees in the morning for the first four or six days, and unlike the curve of any other acute febrile or inflammatory disorder; cough and bronchial rales; singular prostration of muscular strength; early heart-failure and a dicrotous pulse. The tongue soon becomes dry, and shows, in grave cases, a brown stripe in the middle, with *sordes* on the teeth and gums; in fatal cases, death occurs during the third or fourth week, with the constant and characteristic lesion of the small intestine involving Peyer's glands; and with enlargement of the spleen. Convalescence is tedious; true relapse is not infrequent, and the disease affords as perfect immunity from subsequent attack as does scarlet fever or smallpox.

Dr. W. C. Townes read a paper entitled: "Pathology and Treatment of Goitre." This paper was suggested by observing many cases while "tramping" among the Alps of the Tyrol and Switzerland this last Summer. The author claims the gland to secrete a colloid substance which aids in blood making. Etiology of goitre is not established. He describes the histology and the naked-eye appearances of the gland. The tumors are benign—are hypertraphies and hyperplasias which undergo mucoid changes. May become cystic, then the growth is quite large. The treatment is prophylactic, with iodine of some form in the beginning. Later, the results of many observers show that the removal of the goitre should be practiced. Suggests a trial of the ingestion of the gland of the sheep, quoting from Kinnicutt.

Night Session.

A paper by C. W. Barrier, of Columbus, Ga., was read, entitled: "The Elastic Dressing Applied to Incomplete Anchylosis of the Knee," of which the following is a synopsis:

The elastic dressing applied to incomplete anchylosis of the knee. Report of case. Description of the elastic dressing, with method of using it. Indications of treatment of such a case: 1. Arrest the atrophy of the synovial membrane and restore it to its function. 2. Break up existing adhesions and prevent the formation of others. 3. Restore the tendons of the hamstrings to their normal length. 4. Arrest of the atrophy of the tendon of the quadriceps and stimulate it to antagonize the hamstrings. Conclude by showing how these indications are met better by the elastic dressing than by an operation or a fixed dressing. Query: If such dressings were more frequently applied in incipient anchylosis, would there not be a less number of cases of complete anchylosis, and still fewer radical operations for same?

H. Berlin related his experience with the "Action of the Galvanic Current on the Uterine Tissue."

The paper contains the results of experiments. A current was passed through the uterine tissue which was then subjected to microscopic examination. In one case the experiment was made on the living subject previous to hysterectomy, in the other cases the cadaver was used. He concluded that the only effect was the destruction of the mucosa and that curetting would accomplish the result much more quickly.

J. B. Cowan, of Tullahoma, Tenn., made an address on "Medical Ethics."

He spoke of the violation of the code in consultations. It is the duty of the medical societies to lift up the profession. We get legislation to protect the people and to elevate the profession so that the code could operate on the members of it. He called attention to the splendid organization of the profession in Alabama.

The following were read by title: "Report of Psychical Science, Chicago, August, 1893"—John E. Purdon, Cullman, Ala.; "The Significance of Albumen in the Urine in Pregnancy"—E. T. Camp, Gadsden, Ala.

Adjourned to meet in Atlanta, on the second Tuesday in October, 1894.

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PHARMACY AND THERAPEUTICS.

Physiological Action of Atropine.—Dr. H. C. Wood (*Medical Age*) summarizes the action of this drug as:

1. A peculiar stimulant of the intellectual cortex, continually paralyzing the same.
2. A respiratory stimulant.
3. A paralyzer of inhibition in the spinal cord and inhibition of the heart and intestines.
4. A powerful vaso-motor stimulant.
5. An elevator of the bodily temperature.
6. A cause of efflorescence upon the skin.

Speaking of it as a prophylactic of scarlet fever, he remarks that some years since a professor of theory and practice in one Philadelphia college taught belladonna and atropine were powerful prophylactics of scarlatina; another professor in another college in the same city taught the precise opposite. In a certain boarding-house a number of students were harbored; scarlatina broke out, and every student of the first-named professor took belladonna, while those of the latter left it severely alone; and many of the first lot took scarlet fever, while none of the latter were infected.

Professor Wood says, further, he is convinced of the value of belladonna in sore throats, when given in doses of five or ten drops of the tincture every two, three or four hours, according to the susceptibility of the case. But its greatest use is in shock, and here its action is that of a vaso-motor stimulant. In shock, alcohol is of little value, since, while stimulating the heart, it paralyzes the other blood-vessels. Strychnine and digitalis may help under such circumstances, but the one drug which will summon whatever there is in the vaso-motor resources is atropine. Dr. Wood also believes in every case where loss of nerve power is the central condition, belladonna is the remedy.

REMEDY FOR ACNE —

Sulphate of zinc	of each 20 grs.
Sulphurated potash	
Rosewater	1 fluid oz.
Precipitated sulphur	30 grains.

Apply three times a day.—*Am. Druggist.*

POTASSIUM PERMANGANATE AS AN ANTIDOTE TO ORGANIC POISONS.—Experiments made by Antal on frogs, rats and dogs demonstrate that potassium permanganate exercises a quick and powerful antidotic influence on a series of organic poisons, among which he names muscarin, strychnine, colchicin, oxalic acid, and oil of sabine. The remedy was administered freely in aqueous solutions of from one-third to one-half of one per cent. The author is still engaged in the investigation of the subject, and will probably add others to the list of poisons to which the permanganate is an antidote. The remedy may be administered by the mouth or subcutaneously, the latter acting more rapidly.—*National Druggist.*

PILLS FOR HABITUAL HEADACHE.—Dr. Zentler.

℞ Arseniate of sodium	āā gr. ss.
Sulphate of atropine	
Extract of aconite	gr. viiij.
Powdered canella	q. s.

Mix. To be made into thirty pills. From one to four pills in the twenty-four hours.

The dose should be diminished if the patient complains of dryness of the throat, mydriasis, feeling of heat or formication.—*Medical Week.*

ATROPINE IN LEAD COLIC.—Dr. F. Rowland Humphreys reports in *The Lancet* a number of cases of lead poisoning treated successfully with sulphate of atropine and potassium iodide. The author concludes that in lead poisoning atropine in full doses (1) relieves the colic and the pain in the head in the most rapid manner; (2) it keeps the bowels freely open; (3) it assists in the return of the bodily powers; (4) it assists, directly or indirectly, in the removal of the lead by potassium iodide.

Effect of Cocaine on Mammary Secretion.—In a case of fissured nipple Guénel first ordered frictions with cognac, and these giving no relief were replaced by a solution of cocaine—two per cent. Under the latter all pain disappeared and the fissures healed, but the breasts became flabby and the supply of milk ceased. Alcoholic lotions led to a return of secretion. Desarnaux has seen cocaine lead to a suppression of milk twice, and attributes this result to the vaso-constrictor action of the drug.—*Gas. de Hôp. dez Toulouse.*

Maurel on the Action of Iodoform upon the Staphylococcus and upon Leucocytes.—1. The staphylococcus aureus and albus arising from gelatine cultures destroyed the leucocytes in 2 hours; rendered the blood diffluent in about 13 hours, and precipitated the fibrine which dissolved in less than 24 hours.

2. Iodoform in doses varying from 0.10 to 2.50 grammes per liter of blood. Say 1 to 15 grammes for a man weighing about 60 kilos is not toxic for human leucocytes. On the contrary, in such doses at least their energy is the more noticeable as the doses are increased.

3. Iodoform has no perceptible action upon the reproductivity of the staphylococcus.

4. But on the contrary it exercises a powerful action upon their virulence, so much so that, after submission to its influence, they become so little dangerous to human leucocytes that the latter are still able to complete their evolution.

. From these experiences Maurel concludes:

1. That the virulence of bacteria cannot alone be conditioned upon the activity of their reproduction, and that it is necessary with microbes in general and with the staphylococcus in particular to take account of three characteristics, viz.: virulence, activity of reproduction, and power to survive.

2. That the efficiency (now so well established on clinical evidence) of iodoform against the staphylococcus is explained by a double action, increase of energy of the leucocytes, and diminution of the virulence of the staphylococcus.—*L'Union Médicale.*

Blaizot on the Antiseptic and Bactericidal Power of Fluoride of Sodium.—Following the suggestions of Artus and Guechet, Blaizot has used this remedy as a therapeutic measure. He commenced by injecting it into rabbits and found that 0.09 to 0.10 centigrammes, they died in coma. He then decided to use it upon the human subject internally, for lavage of wounds, vaginal injections, and even intra-uterine, after confinement, also for an eye-wash and for disinfection of the mouth.

He decides that it has an antiseptic and an anti-microbic power as great as that of the sublimate without any of the disadvantages of the latter.—*Gaz. des Hôp. de Toulouse.*

The highest awards and medals at the World's Fair were given to Reed & Carnrick's Infant Foods and Kumysgen.

Spiegler's albumen reagent has been modified so that it is even a more delicate test for albumen, detecting 1 in 350,000. Its composition: Mercuric chloride, 2.0; tartaric acid, 1.0; distilled water, 50.0, and glycerine, 5.0.—*Pharm. Centralhalle.*

A well-known drug house has recently placed upon the market a new preparation known as Hager's Cordial of Cod Liver Oil.

This preparation is said to be odorless, and devoid of any taste of cod liver oil.

The Best Styptic, from its non-irritating properties, is ferric alum, according to Prof. Cheever, of Harvard University. It coagulates the blood very quickly, but forms with the clot a sort of sand, which is not very irritating to the tissues. Referring to its advantages over persulphate or perchloride of iron, he remarks that ferric alum forms a smooth sort of tissue, while the two former agents form hard, brittle, angular masses.

Gallate of Mercury.—Brouse and Gay, in a paper read before the Academie des Sciences, give an account of experiments with this body as an anti-syphilitic. The method of preparation is as follows: Take

Acid gallic crystal	37.6 gr.
Hydr. oxid. flav	21.6 gr.

Mix the bodies by rubbing in a mortar; add 25 c.c. of distilled water to obtain a semi-fluid paste. Leave the mixture in a mortar for two days; powder the mass and dry over sulphuric acid. This may now be used in the form of pills of the following composition:

Hydr. gallate	.05 gr.
Ext. cinchonæ	.10 gr.

The authors have tried the remedy on thirty different patients and find that it is very rapidly absorbed and very efficacious, whether in the early stages or during secondary symptoms.

They urge that its therapeutic effect is as great as the bichloride or biniodide of mercury, and that it is not poisonous in the usual doses and does not produce any of the disagreeable effects of the bichloride.—*Comptes Rendus.*

ALKALINE SULPHO CAFFEATES.—It is a recognized fact that the diuretic action of caffein which depends on the stimulating effect of this remedy on the renal epithelium, is very much interfered with by the vaso-constricting action of this substance. Experiments on animals have shown that the influence of caffein in causing contraction of the blood vessels can be counteracted by the administration of chloral, the result being profuse diuresis. But this is not a very convenient method in practice, seeing that large doses of chloral are often contra-indicated in cardiac and renal affections.

The difficulty has now been removed by the researches of Dr. Heinz, Privat-docent and Assistant Pharmacist to the Pharmacological Institute of the Medical Faculty of Breslau, who has succeeded in preparing a sulpho-caffeic acid, the salts of which with sodium, lithium, and strontium, exert no action on the vaso-motor center, while possessing all the diuretic properties of caffein.

Having satisfied himself of the innocuousness of these salts on animals Dr. Heinz tried them on the human subject. As the result of his experiments he found that in doses of from four to six grammes (a drachm to a drachm and a half) in the twenty-four hours the sulpho-caffeates of sodium, lithium and strontium increase the quantity of urine excreted by a healthy man to almost double the normal amount. These remedies are always well borne by the stomach. They do not disturb the appetite or digestion nor do they interfere with the intestinal peristalsis. They never give rise to the appearance of albumen or sugar in the urine, the composition of which remains normal. Moreover, they exert no influence on the blood pressure, pulse, respiration or on the general condition of the patient.

Apart from the various forms of dropsy, the sulpho-caffeates are apparently useful in the treatment of obesity and fatty degeneration of the heart by reason of their dehydrating action on the tissues.

It is believed that the sulpho-caffeate of lithium may prove beneficial in cases of gout and urinary calculi.

The sulpho-caffeates are soluble in water in the proportion of from 5 to 10 per cent., but they are most conveniently administered in *cachets* on account of their bitter taste.—*La Semaine Médicale.*

MISCELLANEOUS.

Hypnotism.—Dr. Valentine, at the Pan-American Congress, outlined the medico-legal relations of hypnotism as follows:

The therapeutic possibilities of hypnotism are not denied. A patient who persuades himself, or is persuaded, that he can be cured by the hypnotic influence, is as well or better cured than by drugs or appliances that do not appeal to his view of the case.

The hypnotic state should never be allowed a status in law or morals. While it is certainly better that a hundred rogues escape than that an innocent being be punished, there is no human mind conceivable that can be induced by hypnotic suggestion to do what its owner knows to be wrong. Those "moral defectives" who cannot distinguish right from wrong are proper subjects for the insane asylum.

Many more propositions could be adduced, but if the foregoing are established, hypnotism will have its status defined, and be thus deprived of all power for evil. It must be clearly understood that no healthy being can be hypnotized without his or her full consent and co-operation; consequently any violation of legal enactment, or even unwritten code of morals, while the individual is under alleged "suggestion," is properly as punishable as if committed by one in full independent possession of mental faculties. With this view everywhere accepted and established, hypnotism will no longer be a menace to public weal.—*Age.*

The Size of the Fœtus.—Auvard states that the length of the fœtus at different ages is about as follows: At the middle of the fourth month it is eight inches in length; at the middle of the fifth month, ten inches; of the sixth month, twelve inches; of the seventh month, fourteen inches; of the eighth month, sixteen; of the ninth month, eighteen; and at the end of nine months it is twenty inches long.—*Lancet Clinic.*

The recently amended pharmacy law of Kentucky, although not satisfactory in all respects, contains many provisions which place it in the front rank of pharmaceutical legislation. No person within the State is allowed to sell or dispense poisons for medical uses without first obtaining a certificate of registration as a pharmacist. A list of over forty substances and their different preparations which are considered poisons has been compiled. Among these are noted Paris green, proprietary or secret medicines sold or advertised as emmenagogues or parturients, and all that are known to contain a large proportion of opium or other powerful narcotic. Every druggist is required to register sales of poisons, and is not allowed to sell without being satisfied that the buyer is of lawful age and knows the danger of the poison bought, and is buying it for a legitimate use. In the matter of adulteration the Kentuckians seem to have put their best foot foremost. The law provides penalties for the addition or removal of any ingredient from any drug, medicine or chemical preparation, for the purpose of adulteration, substitution or alteration, which shall detract from the quality, commercial value or medicinal effect, if the same is done without informing the purchaser and writing the words "adulterated," "altered" or "substituted" upon the package. Any medicine or drug used after becoming inert from exposure or age shall be deemed a substitution. Provision is made for analysis by the State board of medicines suspected of adulteration, the person requesting the examination being required to pay a reasonable fee, not exceeding $30, for such work. The law also renders obligatory the filing and serial numbering of physicians' prescriptions, and says "the pharmacist shall furnish a duplicate of any prescription on the application or order of attending physician." The real intent of the latter injunction is not quite apparent, as there is hardly ever any controversy in the matter, as the wording of the law would intimate. Had the word "only" been inserted before the word "on," the real intent of the law would probably have been stated.

The act allows, in addition to those already having certificates, the registration of graduates of Kentucky schools of pharmacy, and those of regularly incorporated schools of medicine who have been practicing and compounding medicine for ten years immediately preceding the enactment of the law.

The use of the term "large proportion" is somewhat indefinite as applied to medicines upon the poison list known to contain opium or other powerful narcotics, but, knowing the almost utter impossibility of obtaining perfection in pharmacy laws, the druggists of Kentucky are to be congratulated upon the advance they have made, and their next step should be an attempt to eliminate section 17 of the act, which reads: "Nothing in this law shall apply to persons selling drugs or medicines in towns of less than one thousand inhabitants."

Sir Andrew Clark.—This eminent Scotch physician, one of the foremost of the age in any land, was born on October 28, 1826, and was educated first in ancient Aberdeen and then in Edinburgh. During his early manhood he gave unmistakable promise of future greatness· winning, in swift succession, first medals in anatomy, physiology, chemistry, botany, materia medica, surgery, pathology, and practice of physic. He was for two years Dr. Hughes Bennett's assistant in the pathological department of the Royal Infirmary, and was Demonstrator of Anatomy to Dr. Robert Knox in that great Anatomist's last course of lectures. Then for four years he had charge of the pathological department of the Royal Naval Hospital at Haslar, where he delivered lectures on the use of the microscope in practical medicine. Finally, in 1854, he received the degree of M D. from the University of Aberdeen, and settled in London.

In the metropolis Dr. Clark rapidly rose to the highest standing in his profession. He became a member, and, in 1858, a Fellow, of the Royal College of Physicians, and in that distinguished body was Croonean and Lumelian Lecturer, Councillor, Examiner and Censor. He was also Lettsomian Lecturer and president of the Medical Society of London, and consulting physician and lecturer to the London Hospital and to the East London Hospital for Diseases of Children. For a number of years he was president of the Royal College of Physicians. Aberdeen, Edinburgh and Cambridge each made him an L.L. D. honoris causa, and in 1883 the Queen made him a Baronet. His professional writings were voluminous, and have become standard works in all medical libraries.

It was originally Dr. Clark's intention to devote himself exclusively to pathological research and study, but this he found impossible. He was literally forced into the general practice of his profession, and had a clientage scarcely rivalled in size and quality. Among his patients were the Prince of Wales and Mr. Gladstone: but his big house on Cavendish Square was daily besieged by a great host of almost all sorts and conditions of men and women.

He died November 6, at 4.30 P.M.

JEAN BAPTISTE CHARCOT.—The mournful intelligence has reached us that death has taken away this useful teacher and physician in the very zenith of his fame and while engaged in the enjoyment of a well-earned vacation.

Death came to him suddenly, and thousands stand in spirit mourning at his bier. Professor Charcot stood pre-eminent among the brilliant men who have shed luster upon French medicine in the present generation. He towered so far above his contemporaries that even the tongue of envy was silenced and attuned to reverential admiration in the contemplation of his life and character. Charcot was not only brilliant; he was original and path-finding. Like his noble-hearted countryman Pinel, he labored successfully to bring order out of the chaos existing in psychiartic medicine. By these labors alone he has earned the respect and admiration of the world.

Charcot was eminently fitted for creating an epoch in neurology. Shortly after attaining manhood's estate, a fortunate event enabled him to become independent of pecuniary emoluments and to dedicate his life to the interest of suffering humanity.

How well, how grandly, he has fulfilled this lofty mission is recorded in the literature of every living tongue. From all countries come eulogies upon his life and labors. As a chronicle of events it is our mournful privilege to join the universal acclaim and pronounce Jean Baptiste Charcot one of the grandest figures in medical history.

To the great intellectual gifts and charming personality with which nature had endowed him he added industry, energy, and a love of his kind which are rarely combined in one character, and by which he wrought out a noble and enduring usefulness.

From the enormous clinical material presented by the 4,000 beds of the Salpetuère, to which he devoted three days of every week, his genius evolved methods of clinical instruction for the thousands of eager students and practitioners who sought inspiration and learning at this fountain head of modern neurology. Not only in the diagnosis of nervous diseases did Charcot create important and lasting advances, but also in the treatment of these unpromising maladies has he made it possible for us to attain success not to be reached before his advent. His brilliant and original mind cast aside the trammels of traditional therapeutics. He discarded medicinal agents to a great extent, and developed psychical therapy, electrotherapy and hydrotherapy into remedial agencies, whose potency was formerly unknown and unappreciated.

His large clientele, perhaps the most cosmopolitan ever assembled in a doctor's waiting room, testified eloquently to his success as a practical physician.

We mourn the decease of such a man, and seek consolation in the noble example of his life and character.

THE LATE DR. ALFRED LUDLOW CARROLL.—The members of the Council of the New York State Medical Association deeply mourn the loss of their beloved, erudite, scholarly, and gentle colleague, Alfred Ludlow Carroll, M.D., who has labored so well and so assiduously for the association, for the profession, and for the people, as the editor of the association's "Transactions," as a prolific contributor of scientific material, as a promoter of the honor, dignity, and advancement of medical science, and as one of the foremost sanitarians in the land. The council has therefore resolved that their high appreciation of the noble qualities and of the scientific accomplishments of their late gifted and lamented colleague be recorded in this volume of "Transactions," and in the medical journals, and that a copy of the above be transmitted to the family of the deceased.

E. D. Ferguson, M.D., Secretary. Done by the Council, November 4, 1893.

URETERECTOMY.—Reynier reports a case in which he removed the whole of one ureter. The patient first came under treatment in April, 1892, when he gave a history of typhoid fever in February, 1891, and two months later more pain in the lumbar region, followed by albuminuria and then pyrexia (*British Medical Journal*). The urine was purulent at intervals, and micturition painful. At this time the existence of a pyonephrosis on the right side was diagnosed. On May 27, nephrectomy was performed, when the kidney was found to be a purulent cyst. The peritoneum was opened at the operation, but was returned without allowing local infection to occur. The ureter was fixed in the lower part of the wound. Fifteen days after the operation pus still flowed from the end of the ureter in the wound, the temperature still remained raised, and on cystoscopic examination drops of pus were seen exuding from the opening of the right ureter. Washing out of the ureter was next practiced, but without any good result. A further operation was now performed. The lumbar wound was enlarged, and 12 cm. of the upper end of the ureter removed. The fistula still remained and no good result followed. On November 18 an incision was made in the right inguinal region, and the peritoneum stripped up until the remains of the ureter were reached. It was dilated even to its junction with the bladder. The whole of the ureter remaining was now removed. On the following day pus had disappeared from the urine. On January 21, 1893, the patient was discharged completely cured. According to the author, this is the first case of complete removal of one ureter. He recommends that when ureteral accidents occur after nephrectomy, especially in tuberculous cases, the affected ureter should be completely removed by an inguinal incision and stripping up of the peritoneum.—*Medical Record.*

TOBACCO OINTMENT IN LABOR.—Dr. S. F. Verbeck states (Chicago *Medical Times*) that he was induced to use this preparation in a case of undilatable os in labor. He says he applied it thoroughly with his finger over the vaginal surfaces, and over the os and neck, and as high up as he could reach on the walls of the womb. To his great delight, ne noticed an almost immediate change in the condition of the parts and a most satisfactory and complete dilatation within about half an hour. There were no constitutional symptoms except a desirable relief from the irritating pains and the appearance of normal expulsive pains. The child was born within an hour. He has used it again with the same results. Since then he has used this ointment in eleven severe cases of rigid os without having any unsatisfactory results whatever. In every case the relaxation was complete within an hour, and the terminaton of the labor was in every way satisfactory. In one of the cases there was a mal-position and he was obliged to use forceps, but their use was greatly facilitated by the perfectly relaxed condition of the parts. The ointment was prepared by cutting up a plug of strong tobacco, mixing thoroughly with melted lard, and allowing it to simmer for several hours. It was then strained and kept for use.

Diagnosis of Breech Presentations before Labor.—Pinard, *Rev. Médicale*) lays great stress on tenderness of the fundus. In some pregnant subjects who have passed the sixth month, pressure of the hand on the fundus causes sharp pain. Sometimes the patient feels pain without the part being touched. In both cases the evidence of breech presentation is strong. This pain, or tenderness, is solely due to the pressureof the fœtal head, which is harder and more bulky than any other part of the fœtus, and distends the upper segment irregularly. That segment is not naturally designed to receive the head. Pinard especially notes that the pain disappears after version. The tenderness is influenced by the size of the head, the amount of liquor amnii, and the flaccidity of the uterine walls. This tenderness of the fundus is present in 70 per cent. of breech presentations.—*British Medical Journal.*

Legal Criticism of Medical Expert Testimony.—A recent trial in Omaha, Neb., brought forth some deserved criticism from the legal profession and likewise from the judicial bench concerning expert testimony as it commonly obtains in courts of law. Doctor Clark Gapen summarizes the criticism as follows:

"The expert is an important factor in the various litigations that arise, but as at present conducted, a trial involving a medico-legal question is a farce as compared with a cause which involves purely a question of law.

"Lawyers sometimes like to pose as learned in medicine. For this reason, if no other, the expert should be selected by the court, and wholly with reference to his knowledge of the question involved.

"A cause of disrespect of medical expert evidence is the common custom of permitting the expert to act as both counsel and witness in the trial. Seemingly the court might properly take testimony as to the *qualifications of the expert.* An excellent plan, perhaps, would be to have lists handed in by each side, and let the court choose from the lists. Again, the expert should avoid invading the province of the jury, or giving an opinion on the individual case; the proper course to pursue instead would be to put a hypothetical question to the expert for answer.

"Medical jurisprudence should be properly taught in medical colleges; at present this topic, to say the least, is handled in a perfunctory and slipshod manner by merely repeating over and over the mummery of some text book long since obsolete.

"Moreover, in teaching jurisprudence the student should be given a forecast of what he is likely to encounter in court. And above all he should be taught to be frank, truthful, direct, plain, non-technical, and likewise, when giving an opinion, to previously segregate the same from all outside considerations. Students go forth unequipped in these particulars."

These few words strike at the very foundation of the evil of medical expert testimony as permitted in the United States.—*Age.*

THE PLINY CURE FOR INEBRIETY.—Dr. Robertson says, in the *Pacific Medical Journal*, "I will match Keeley's secret, as regards remedial value and scientific acumen, with one I recently found in the 1601 edition of Philemon Holland's translation of Pliny: 'For to avoid drunkeness, take the lungs of an hog, be it bore or sow, it matters not, in like manner of a kid, and rost it; whosoever eateth thereof fasting shall not be drunk that day how liberally soever he take his drinke.'"

SURGICAL TREATMENT OF URINARY INCONTINENCE IN THE WOMAN.—(*Internat. klin. Rundschau, No.* 19, 1893.)—Incontinence of the urine in many women is by no means rare. As it is known, the slightest increase of abdominal pressure, produced by coughing, laughing, or or any other effort, causes the urine to escape. Therapeutic attempts have been made to remedy the weakness of the sphincter and the shortness of the urethra by cauterization of the external orifice of the canal. Three years ago Gersuny proposed to twist the canal, and this operation has just been successfully performed by Zuckerkandl.

The patient was a woman, 54 years of age. Examination showed the bladder to be in normal condition. She was afflicted, however, with the variety of incontinence just described, and had been submitted to various modes of treatment without favorable result.

Zuckerkandl made an oval incision around the urethral orifice, and separated the walls of the canal up to the bladder. By then twisting the urethra in the direction of the hands of a clock, he obtained a rotation of 360 . The external orifice was then fixed in this new position with a row of stitches, a sound was left in place for two days, and after fourteen days' rest the cure was complete, and the patient could easily retain her urine.

It is well to remember that the first patient operated on by Gersuny in this way three years ago has never again been troubled by incontinence, but has, on the contrary, to make an effort to pass water. Gersuny has successfully applied the same method to the making of an artificial sphincter ani by drawing the extremity of the large intestine and twisting it and then framing it with stitches to the orifice.

Increase of Nervous and Mental Disease in France.—Dr. Charles Fere, a well known authority on nervous and mental diseases says that these disorders are increasing at a terrible rate in France and attributes the fact to the increase in beer drinking, absinthe drinking and bars. There was scarcely such a thing as a bar 23 years ago, he says, but now they are all over the town and always crowded.

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MEDICAL NEWS AND NOTES.

Acetanilid, in five grain doses, is now much praised for its virtues in epilepsy.

Hydrastine in Gonorrhea.—After the acute stage of gonorrhea has passed, muriate of hydrastine is most valuable as a mild astringent injection.

Professor Von Esmarch has done 20,000 important operations He is now seventy years of age, and if he lives ten years more he will stop working and write his memoirs.

The Faculty of Rush Medical College gives a course on Medical Ethics, which we are told is much appreciated. Such courses might fill a want in graduate institutions.

THE SIGNIFICANCE OF A REPUTATION.—A member of the Yale crew was recently taken ill suddenly with abdominal pain, vomiting, and other symptoms referable to the appendix vermiformis. A New York surgeon who had written much regarding that small but important portion of the body was summoned. As the consultant left the room the student asked his name. "That," said the nurse, "is Dr. X——." "Good Lord!" said the young man, "then I must have appendicitis." His diagnosis was correct.—*Pop. Science News.*

DIED AT THE AGE OF ONE HUNDRED AND THIRTY YEARS.—Peter Arreola, who recently died at Tarimore, Mexico, aged one hundred and thirty, was probably the oldest man in North America. He left two hundred and twenty living descendants, many of whom are prominent in Mexican affairs.—*St. Louis Courier of Medicine.*

FEEDING IN FEVERS.—Peabody (*Medical Record*) believes that in all kinds of illness, and especially in fevers, attention must be paid to the appetite and desire of the patient. If a patient is really hungry solid food, of a properly selected kind in judicious quantities, will rarely disagree with him. He believes there is less danger of doing harm to an ulcerated ileum in typhoid fever by giving finely divided egg, beef, or chop than by giving milk. He habitually gives his patients with typhoid, who are hungry, such food. He believes it is a mistake to withhold solid food merely because a patient has fever, and that it is incorrect to regard milk as a fluid food. Milk will always remain the most serviceable general food in disease, but where it fails to nourish the patient, where it is not well borne, where it cannot be taken for any reason, it is well to remember that efficient adjuncts and substitutes are within reach.

"WHEN I WAS YOUNG we prepared students for life; now we prepare them for examinations" is a bit of truth from Jules Simon.—*Med. Record.*

POST-PARTUM HEMORRHAGE.—There appears to be an unusual liveliness in therapeutics in this direction. The latest new remedy heralded is essence of cinnamon in 20 to 60 minim doses, which in the majority of instances means tincture of cassia oil.—*Age.*

CHOLERA HAS AGAIN broken out in the Charleroi district of Belgium, where 300 cases have occurred within a month, with a fatality of 35 per cent.

The following puling effusion appeared in a late number of a well-known "home journal":

"We are told that in *one or more* of the High Schools of Massachusetts it has become a practice in the zoölogical class *to procure live animals, cats and such like, chloroform and dissect them in the presence of the class.*

"What possible reason can there be for teaching our High School boys and girls to kill and dissect animals is more than we can comprehend.

"It seems to us *simply infernal*, and only to be accounted for on the principle that the *devil always mischief finds for some men's brains to do.* It shows a *terrible want of humane education in some of our higher institutions of learning* which send out such teachers."

We should not be surprised to see this paper start a "crusade" against the practice of vivisection as carried on by students of anatomy.

"The greatest of fools is he who imposes upon himself, and in his greatest concern thinks certainly he knows that which he has least studied, and of which he is most profoundly ignorant."

A Tooth-Making Boy.—Dr. O. Hildebrand, of Göttingen (*Record*) reports the case of a boy of fourteen, who since the age of twelve years had had from a hundred and fifty to two hundred teeth of various sizes removed. A year and a half later seventeen more were removed, with evidences of others coming. The boy's jaws seemed to be a perennial fountain of teeth.

At the late meeting of the Orleans Parish Medical Society, Dr. Landfried said that his experience with intubation, even in apparently favorable cases, has been such as to make him feel that it is not a very valuable addition to our means of combating the disease. He was compelled to look for something else, and he has adopted a plan of treatment which has given very gratifying results. He uses peroxide of hydrogen in the following manner: he makes a mixture consisting of peroxide of hydrogen 3 parts, water 1 part, and a little bicarbonate of soda (about ten grains to the ounce). He fills a laryngeal syringe with this mixture. Then he passes one index finger down to the arytenoid eminences as a guide, and slides the nozzle of the syringe, which is held in the other hand, down to the end of the fingers. He then quickly squirts the liquid into the vestibule of the larynx, and flushes the larynx and the lower part of the pharynx. This manipulation causes a brief dyspnœa and great distress, but the efforts at coughing thus provoked bring up large chunks of false membrane, and the breathing at once becomes easier. From this on, the patient continues to improve. The nourishment of the child is also looked after. After the larynx has been flushed out as above described, the patient is able to swallow better.

THE *Brooklyn Medical Journal* gives the following directions for the use of cocaine: 1. Amount of cocaine used must be in proportion to the extent of surface it is desired to anæsthetize. In no case should the quantity exceed one grain and three-quarters. 2. Cocaine should never be used in cases of heart disease, pulmonary disease, or in persons of highly nervous temperament. 3. In injecting cocaine, the intradermic method is preferable to hypodermic. By injecting into, not under, mucous membrane or skin, the risk of entering a blood vessel is avoided. During injection the patient should always be in a recumbent position; in operations upon the nose and throat, the head should not be raised until anæsthesia is complete. 5. It is of great importance that cocaine should be pure, since its combinations with certain other alkalies result in poisonous compounds.

DR. F. R. CLARK, of Stockton, Louisiana, said a case had recently come under his observation, touching on the feeding of infants, that he would report. He desired to say in advance that it was not to discredit the care that should be taken, but simply to state it as a fact, for what it was worth. About four months ago he attended a woman 52 years of age, in her thirteenth confinement. It was a large baby boy, and the mother had some trouble with her breasts. She believed she was unable to nurse the child, and hence felt obliged to feed it. She fed it from the table from its birth, ordinary food—potato, etc. The baby at three weeks old was allowed to suck a piece of steak.

At five weeks the speaker had seen it eating pork and beans, yet it was as healthy a child as could be seen.

TRIPLETS.—Mr. Sidney Mathews, of Crawley, Sussex, England, reports triplets, two boys and one girl, with three absolutely separate placentæ. More remarkable, perhaps, was the fact that all three were vertex presentations, and the birth of each child was followed by its own placentæ before the next succeeding infant presented.

WHENEVER WE SEE a woman unpack her trunk when she comes on a visit we wonder what was done with the rest of the drug store.—*Pharm. Era.*

THE NEW YORK HEALTH DEPARTMENT is slowly determining to isolate as contagious all cases of membraneous croup. Dr. Edson some time ago ordered a patient scientific investigation of the nature of this affliction and the result supported his view that membraneous croup is not only often similar in symptoms and effect to diphtheria, but that it is a veritable type of that disease.

The report formulated by Chief Inspector Hermann M. Biggs reads, in part, as follows:

During the last four months bacteriological examinations have been made in thirty-six cases of membraneous croup. In all of these the membrane was either confined entirely to the larynx or at most only slight deposits existed in the throat, while there was very extensive exudation in the larynx. In thirty of the cases the Löeffler bacillus of diphtheria was abundantly present. These cases, therefore, were really cases of laryngeal diphtheria. In six cases no Löffler bacilli were found; these were therefore cases of catarrhal pseudo diphtheritic inflammation of the larynx and are to be considered analogous to similar pseudo membraneous inflammations (non-diphtheritic) in the pharynx.

In five of the laryngeal cases in which the Löeffler bacillus was found, cases of pharyngeal diphtheria both preceded and followed within a week in the immediate vicinity. In three other instances the cases of croup were preceded by cases of true diphtheria and in seven instances were followed by cases of true diphtheria.

In the remaining fifteen cases of membraneous croup pharyngeal diphtheria neither preceded nor followed in the immediate vicinity. None of the six cases of croup in which no Löeffler bacilli were found were followed or preceded by cases of diphtheria.

During the last four months, therefore, nearly eighty-four per cent. of the cases of so-called membraneous croup referred to this department for bacteriological examination have proved to be diphtheria.

Dr. Edson expressed the belief that membraneous croup will eventually be generally considered the same as laryngeal diphtheria. Notices are to be sent to physicians to report to the board all cases, and arrangements now being made for isolation quarters for patients.

It is expected that the subject will receive wide discussion by medical academies of the country.

THE ETIOLOGY OF PHTHISIS SETTLED.—"Doctor" Mary Walker, of trousers and chimney-pot hat fame, has finally evolved the cause of tuberculosis. Climate, bacilli, and all the rest, "are not in it"; the sole cause is *tobacco smoke!—Age.*

They had asked Dr. Sandblast, the eminent surgeon, to carve the festal fowl, and he stood over it with the carving knife held delicately in the first position. "The incision, you will observe, gentlemen," he began dreamily, "commences a little to the left of the median line, and—oh, excuse me, Mrs. Parmalee, I thought I was in the—*may* I help you to a little of the femur?"—*Puck.*

The Russian Government has officially regulated medical fees. There are three classes: 1st, five roubles, to be paid by capitalists, landed proprietors, manufacturers, and merchants in large cities: 2d, three roubles to be paid by professional men and employees of the higher classes; 3d, 30 kopecks by all others, including villagers.

The Medical Society of King's College held its first meeting on October 27, on which occasion Sir Joseph Lister, who was announced to read a paper on "Essentials in Antiseptic Treatment," received a great ovation from the large gathering of members and visitors who had assembled to hear him. In his remarks, Sir Joseph Lister dwelt upon the essential points to be attended to in order to obtain uniformity of aseptic results. He pointed out how greatly procedure had been simplified by the recognition of the truth that microbes, in the attenuated condition in which they are present in the air, are effectually disposed of by the natural antiseptic action of the living body; so that the atmospheric dust may be entirely disregarded in operating. But simple as are the means now employed, Sir Joseph insisted upon the necessity for earnest vigilance in their application, and he cautioned his hearers against lightly abandoning means which experience has proved to be thoroughly trustworthy. The enthusiastic cordiality with which the address was received by an audience, including a large number of young men from various different schools, augurs well for the future of antiseptic surgery.—*British Med. Journal.*

King of Fiends.—St. Louis has a remarkable victim of the morphine habit. A dose of the drug sufficient to kill 20 ordinary men is a mere item to him.

When taken to the hospital he was at once placed under a treatment of bromides, with strengthening diet.

Dr. Robert Battey, of Rome, Ga., has presented his medical library to the State of Georgia upon the condition that it be placed in a separate alcove in the State Library at the State Capitol as a nucleus of a State Medical Library.

EDITORIALS.

SUBSTITUTION.—It seems that the past efforts of the medical profession to suppress this evil have been of no avail. Indeed, the practice seems to be gaining in frequency and extent.

A large number of druggists, not satisfied with defrauding the innocent buyer of patent and proprietary medicines, have the exasperating effrontery to substitute medicines called for by physicians' prescriptions.

A recent example of this is given by a letter received by Messrs. Wm. R. Warner & Co., wherein a physician complains that, where he had prescribed Ingluvin for his patent, the druggist had sold a "scientific substitute" to the patient. Elsewhere we print the complaint of the Antikamnia Chemical Co. that substitutes are being offered for their preparation.

It is not only these preparations that are being imitated, but a large number of tried and valued remedies, such as campho-phenique, bromidia, listerine, and many others.

This class of druggist and manufacturer should not be left to the action and public condemnation of the medical press.

There should be a law whose action should be so swift and sure as to stop this crime against patient, manufacturer and physician.

In England, the chemists are doing a great deal of illegal prescribing for patrons. They even go so far as to pull teeth and make minor surgical operations. This, of course, calls forth the protests of English physicians. In answer, the chemists say that, in their opinion, "the physicians have no right to compound their medicines"

In the first place, medical men do not "overstep the bounds of their profession" when they dispense their own medicines, and the assumption that they do shows ignorance of the history of the medical profession. Their education includes practical pharmacy, their diploma entitles them to practice medicine, surgery, midwifery, and pharmacy, and the dispensing of medicines has always, from the beginning, formed an integral part of the daily work of the apothecary or general practitioner.

In the second place, no part of a druggist's or pharmaceutical chemist's education teaches him to diagnose one disease from another or to select the appropriate therapeutic measures for its treatment, and his diploma does not entitle him to do so legally. They are, therefore, most certainly "overstepping the bounds of their profession" when they attempt to practice.

THE QUACKS and patent medicine vendors are making a desperate effort to intimidate the editors of medical journals by taking proceedings to punish them for criminal libel, and by the institution of suits to recover immense sums of money as balm to their wounded "professional reputation.

As stated elsewhere, though, the majority of the cases do not get any futher than the filing of the libels. A second suit has been commenced by the Amick people against the editor of the Cincinnati *Lancet-Clinic*. Their efforts so far have not been very successful, for example the action against Dr. Reeves. The Grand Jury ignored the complaint. Dr. Leslie E. Keeley, of "gold-cure" notoriety, has discontinued the suit for libel brought by him against the editors of the *Lancet*, and we note with great satisfaction that he has been mulcted in the costs.

Dr. Culbertson's remark that "the Amick cure people are not the only quacks in this city and State" would apply equally to New York city and State, as to Cincinnati and Ohio.

IN THE New York *Sun*, Dr. Leslie E. Keeley publishes a two column dissertation on the "Modern Progress of Medical Science." For the first time we learn, with no small astonishment, that until within fifteen years the medical profession did not know the cause of disease. Further on, one is informed that "within fifteen years Dr. Koch overturned all medical theories, guesses, doctrines and pretences by his demonstration that bacillus tuberculosis is actually the cause of consumption and all tuberculous diseases."

Altogether one is tempted to ask how much Keeley paid for the insertion of this two column advertisement in the middle of the reading matter of this paper.

A few days later, a two and a half column "article" on "The Causes of Inebriety; Pathology and cure of the Diseased Craving for Alcohol," appears in the reading matter of the St. Louis *Globe-Democrat*.

Either Keeley must be making a snug little fortune from his patients, or the St. Louis *Globe-Democrat* and the New York *Sun* must have reduced their advertising rates.

Apropos of this kind of advertising, it is rumored that the Amick Chemical Company has bought a controlling interest in one of the prominent foreign news agencies, thus being enabled to send to the

American press choice bits of information with regard to the wonderful cures effected by the "only successful treatment for pulmonar diseases."

AT THE LAST MEETING of the New York State Association of Railway Surgeons the necessity for a surgeons' hospital car was much emphasized.

The number of patients dying from shock would be materially lessened if such a car could be put into general use. On coming to the scene of the accident the car could be side-tracked and the wounded persons cared for much more efficiently.

In many instances where amputation of a leg is necessary the operation would be performed on the spot, whereas, if the person had to be transported in a jolting train over a hundred miles to a railway hospital the chances are greatly against his surviving the operation.

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